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Editorial Notes

IT is a good thing to take stock from time to time, to look back over a period of years and see what has been accomplished and how, and then to look forward in the hope of profiting by experience. We may ask, what have been the outstanding events in archaeology during the last few years ? But no sooner is the question put, even in this objective form, than difficulties at once arise. What is ' outstanding ' ? Are not many ' outstanding ' events of lesser value than others to which such an epithet is not applied ? The key-word is ' value '. What standard of valuation is to be used and who is to use it, the scientist or the general public ?

Every writer of appeals for money for excavations and amenities knows that the real purpose, as he conceives it, of the appeal is not usually the one to stress. Every excavator knows that tesselated pavements bring in more gate-money than a really instructive section of a rampart ; and the press follows in the wake of public taste. It is almost impossible to raise money for an undertaking of real scientific value except upon some irrelevant grounds that have a popular appeal. Excavators in classical countries and in Palestine know this well. But if one wants support for an air-survey, an archaeological survey, an international map, or to excavate in some unknown land, one has to fall back on appeals to other than traditional sentiments and the results are discouraging. Purses open freely where patriotic or other traditional emotions are concerned, or when the acquisitive instinct is

aroused ; so these rather than the real motives are alleged. But the archaeologist distinguishes quite clearly between appeal-value and scientific worth.

The ultimate standard of value in archaeology is one of relevance to the history of man. That is our subject, divided up though it must be into compartments, to keep it manageable. That which advances our knowledge of human history is relevant, has a value proportionate to the quality or quantity of the new knowledge. Judged by this standard we assign great value to discoveries throwing light on the physical evolution of man and on the beginnings of our present declining traditional culture, and to new methods of research which further such discoveries. We attach high value, for instance, to the remains of Pekin man at Choukoutien and his primitive bone tools (for which see the next number of ANTIQUITY) and to recent discoveries in Iraq (for which see the last). We attach less importance to showy finds, and more to some of these than to others. (Dr Reisner's Harvard Expedition's discovery of the tomb of Queen Hetep-heres, for example, was richer in new knowledge than the sensational tomb of Tutankhamen).

The truth is that the man of science applies one standard of values and the general public another. The general public applies the standards of the traditional civilization which moulds it from the cradle to the General News Bulletin ; but Science has created its own set of values which are not traditional but rational. Science looks at the past from the point of view of humanity ; *homo sum ; humani nihil a me alienum puto.* Science is the rock upon which the next civilization will be built. Other modern cultures are not universal ; they are split into national and class divisions, and they cannot therefore afford, even if they would, to apply universal standards. Moreover, they dislike them intensely, especially in certain countries. It may not always be so, but at present it is true to say of Science that correct judgments of value can only be passed by those who reject and ignore the standards of the majority in their own countries.

We have already mentioned parenthetically some of the most outstanding recent events. In method or technique the universality, the non-national character of archaeology is particularly plain. England

has contributed air-photography and excavational technique (both at home and abroad); Scandinavia has, in addition to excavational technique and publication, made many brilliant additions such as geochronology, pollen-analysis, and the study of fossil dunes and old sea- and lake-levels; dendrochronology was invented in America, the home of the giant trees, but has not yet been found applicable elsewhere, for lack of material; and there are many minor improvements of technique that could be mentioned.

In our own country one of the most striking recent advances is to be seen in the better organization of archaeology. Science has been described as organized knowledge; and when it is necessary (as above) in recording advances of method to mention techniques derived from botany and geology (and of course zoology), obviously coordination is required. The isolated specialist, though useful to others, is no longer in the van of progress. The lead has been taken by those who can exploit his knowledge for the general good. Perhaps 'exploit' is not quite the right word, however, for the specialist himself, who is also a man of science, is generally most anxious to place his knowledge and skill at the disposal of others. He too is a willing cooperator in the advancement of knowledge.

An outstanding example of successful cooperation is to be seen in the recent rejuvenation of the PREHISTORIC SOCIETY. Formed before the war on a limited (East Anglian) basis, this Society now covers the whole country; and the resultant phenomenal rise in membership amply justifies the broader scope. A glance over recent issues of the Society's Proceedings shows how extensive is the field covered. One of the most valuable features are the Notes on Excavations during the preceding year, covering the whole of Great Britain and Ireland, contributed by representative correspondents. These tell us what is going on, and it is to be noted that there seems to have been more going on in England since 1934 than in the whole of the rest of the area put together, and more in Northern Ireland than in the Irish Free State. The format of the 'Proceedings' has been changed, very much for the better; two stout numbers appear each year. In the last issue the Editor's notes deserve more than a passing mention; under the title of 'Current Prehistory' are fifteen pages dealing with such subjects as the date of the separation of Britain from the Continent

(placed in the 'latter part of the Boreal period'), the lesson of the Köln-Lindenthal excavations (see also ANTIQUITY, 1935, IX, 89–93), the bad side of Russian archaeology, and observations on China, Malaya and Australasia.

Equally alive are the articles. Professor Childe's Presidential Address (' Proceedings ', 1935, 1–15) is as stimulating and original as one would expect, and deals with a subject that will be ventilated in the next number of ANTIQUITY. Dr Grahame Clark's description of the Timber Monument at Arminghall, which he and others excavated in 1935, is not only an account of the excavation of that monument, but also a corpus of plans of cognate monuments elsewhere. Evidence of cooperation, both amongst archaeological specialists and with specialists in other studies, is evident throughout every number. A combined attack has been made by six persons on the submerged land-surface of the Essex coasts, with excellent results for the Bronze Age ; while Mr Philip Ullyott enlivens the Ice Age with a study of flat-worms—valuable allies who have hitherto remained in obscurity. Mr Grimes writes an account, which is both critical and constructive, of the Megalithic Monuments of Wales. Long barrows are represented by articles from Mr C. W. Phillips (Hon. Secretary) at Royston ; Lieut.-Colonel C. D. Drew and Mr Stuart Piggott on Thickthorn Down, Dorset. (In passing we should mention Mr Phillips' masterly account in *Archaeologia* of the Giants' Hills long barrow which he excavated in 1933 and 1934). The article by Messrs King and Oakley on the Pleistocene succession in the Lower Thames Valley is a useful piece of synthesis for which we have long been waiting.

The predominant share of certain contributors is evident. That is a sign of vitality, and fortunate is the Society which can command such voluntary resources of skill and enthusiasm. The PREHISTORIC SOCIETY deserves every support ; those who join it can be assured of getting good value.

Those of our Readers who have not yet made use of the subscription form and envelope placed in the December number will no doubt do so at their earliest convenience (*posting to* 24 Parkend Road, Gloucester). *Such consideration saves much trouble.*

The Roman Orient and the Far East*

by C. G. Seligman

COMPARED with the civilizations of Egypt and the Near East, Chinese civilization *as we know it* is not of great age. Authentic history does not begin until about the ninth century B.C. (a commonly accepted date is 841 B.C.), nor have we archaeological finds that we can reasonably date prior to the thirteenth or fourteenth century B.C., though the beauty and mature style of the earliest known bronzes indicates a history of at least hundreds of years before this.

Figure 1 illustrates the time-relations of China and the Near East. In spite of its magnificent bronzes and graved bones, we know little of the Shang-Yin dynasty, which in date comes near to coinciding with the 18th dynasty of Egypt, while the Shang-Yin script is still somewhat primitive, indicating perhaps a period of no more than a few hundred years from an unknown pictographic origin.

I must add that the above chronology applies only to northern China, where Chinese civilization arose, indeed it did not reach south of the Yangtze until a few centuries B.C. The civilization of Japan is even younger, and is now generally accepted as not more than some 2000 years old. Thus the earliest contacts between West and East were between the Roman Orient and China.

In order to have more space to discuss historic contacts—extending over something more than 1000 years (between 200 B.C. and A.D. 900)—I shall deal very briefly with prehistoric contacts and refer only to the socketed celt. This highly specialized form of axe is one of the most characteristic implements of the Late Bronze Age (*c.* 1300–900 B.C.) of central and eastern Europe.[1] Using geological terminology, we may look upon it as the type-fossil of its age and zone of distribution. It is found over the whole of northwestern, central, and especially northeastern

* The Lloyd-Roberts lecture for the year 1935, delivered before the Royal College of Physicians.

[1] Déchelette, *Manuel d'Archéologie* (Paris, 1910), II, 106. In eastern Russia the date given by G. von Merhart, *Bronzezeit am Yenissei* (Vienna, 1926), p. 16, is from 1000 to 400 B.C.

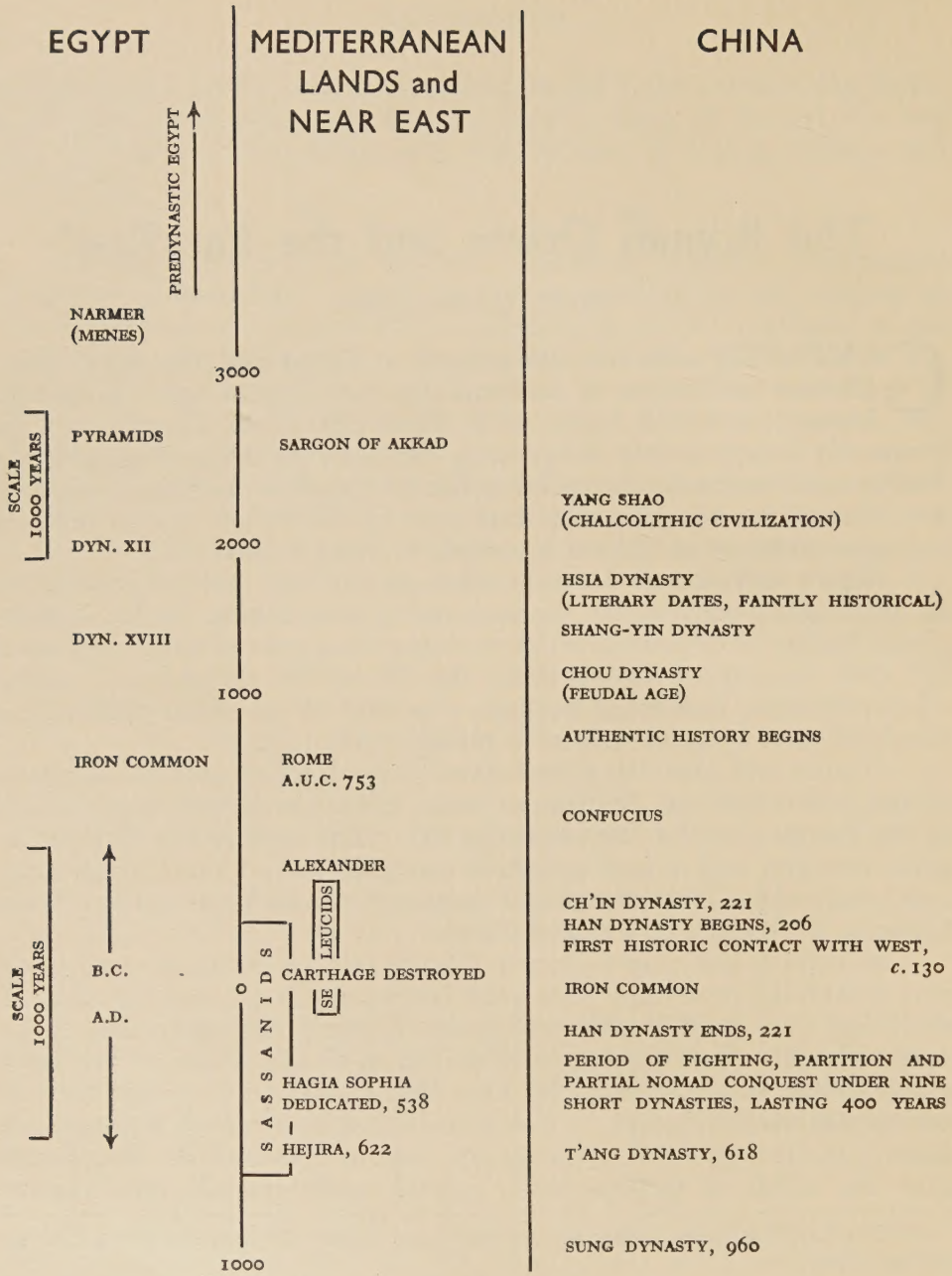

FIG. 1. TIME CHART

Europe ; it occurs in Italy, but not in Greece, and is absent from Africa ; no specimen has ever been recovered from an Egyptian tomb, nor does it occur in Asia Minor, Persia, or India. It probably reached China some five or six hundred years B.C., and, as suggested to me by Professor Minns, its presence there may be associated with events in the far Northwest which started the movements of the Scyths. The socketed celt passed along no definite or organized trade route—there is good

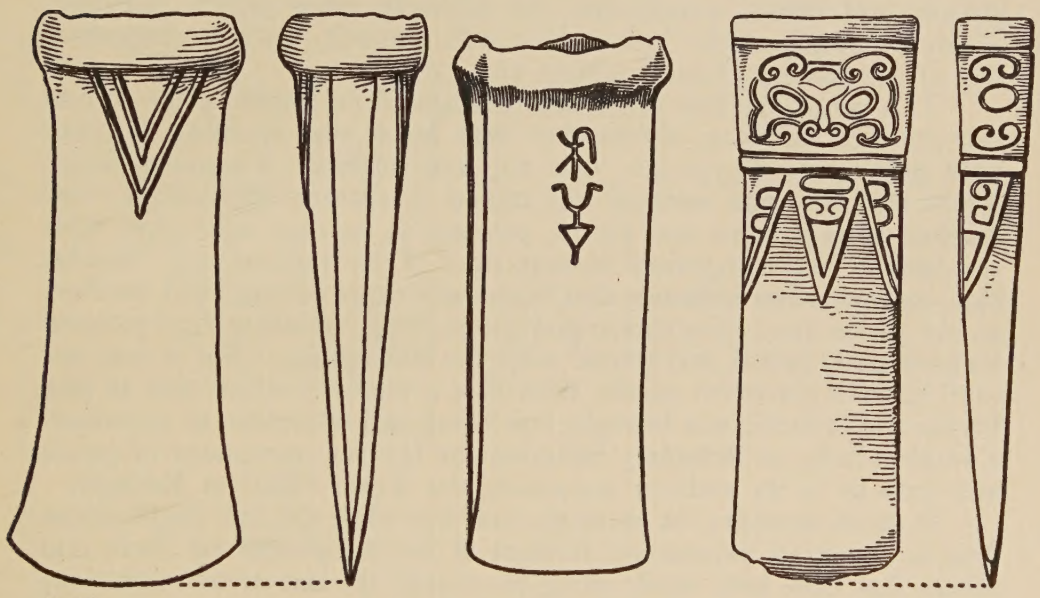

FIG. 2. SOCKETED CELTS

historical evidence to show that the silk route was not organized in its entirety until the second century B.C.—but we may picture it as borne eastward from southern Russia on a wide front across the Urals, specimens passing from hand to hand among the pastoral nomads of Siberia, until here and there, as at Minusinsk, a metallurgical centre came into existence, the manufactured products being carried far and wide north and east of the great mountain ranges of Central Asia.[2]

[2] I have discussed the passage of the socketed celt from Europe to China in *The Journal of the Royal Anthropological Institute*, L, 1920, and have suggested that the European bird-chariot of the Late Bronze Age passed with the socketed celt to China, where it gave rise to the ' dove-chariot '.

Figure 2 represents three socketed celts. The one on the left is from Hungary and that in the centre (both in the British Museum) from China, as is that on the right. The two characters on the central specimen have not been read.

From these early contacts with Siberia and the West, we turn to that great track, nearly 5000 miles long, which, crossing mountain, steppe, and desert, constituted the highway along which Ariadne's silken thread joined the farthest East with Antioch, the most important city of the Roman Orient. (Map, FIG. 3).

This route was first organized throughout its length in the second century B.C., but long before this lapis lazuli was reaching Ur, and even predynastic Egypt (*i.e.* 3000 B.C. and earlier). There can be no doubt that this rare mineral was mined in eastern Afghanistan, and reached Mesopotamia and Egypt, passing, as we may infer, over what was later to be the organized western third of the trade route.[3] Besides this, commonsense indicates that from early times hillmen and dwellers on the plains must have exchanged goods along its course, and pastoral nomads have raided and traded with the sedentaries. But it was not until China's discovery of the West that a highway which was to join Pacific and Atlantic was brought into being and organized to constitute a single whole, as definitely intended for the far movement of goods and men as is its modern successor, the Trans–Siberian Railway.

It must, however, be remembered that while the silk route across Asia is of special interest on account of the discoveries by Stein and others that have been made along its course, the use of the monsoons from the first century A.D. as a means of direct passage from the Red Sea to India was of even greater economic importance. Rome's trade with India was always greater than with the Far East ; part of the silk she received was brought by sea in ships which picked up their wares in ports as far east as Tongking and Burma, as well as in the nearer ports of western India such as Muziris (the modern Cranganore).[4] It is significant that no hoards of Roman coins have been found in China as they have in India.

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[3] J. W. Gregory, *The Story of the Road* (1931), pp. 33–4 ; also A. Lucas, *Ancient Egyptian Materials and Industries* (1934), pp. 347, 348.

[4] The Indian trade, and the sea-borne trade from the Far East which travelled up the Red Sea, is discussed at length in an excellent work by E. H. Warmington entitled *The Commerce between the Roman Empire and India* (Cambridge, 1928).

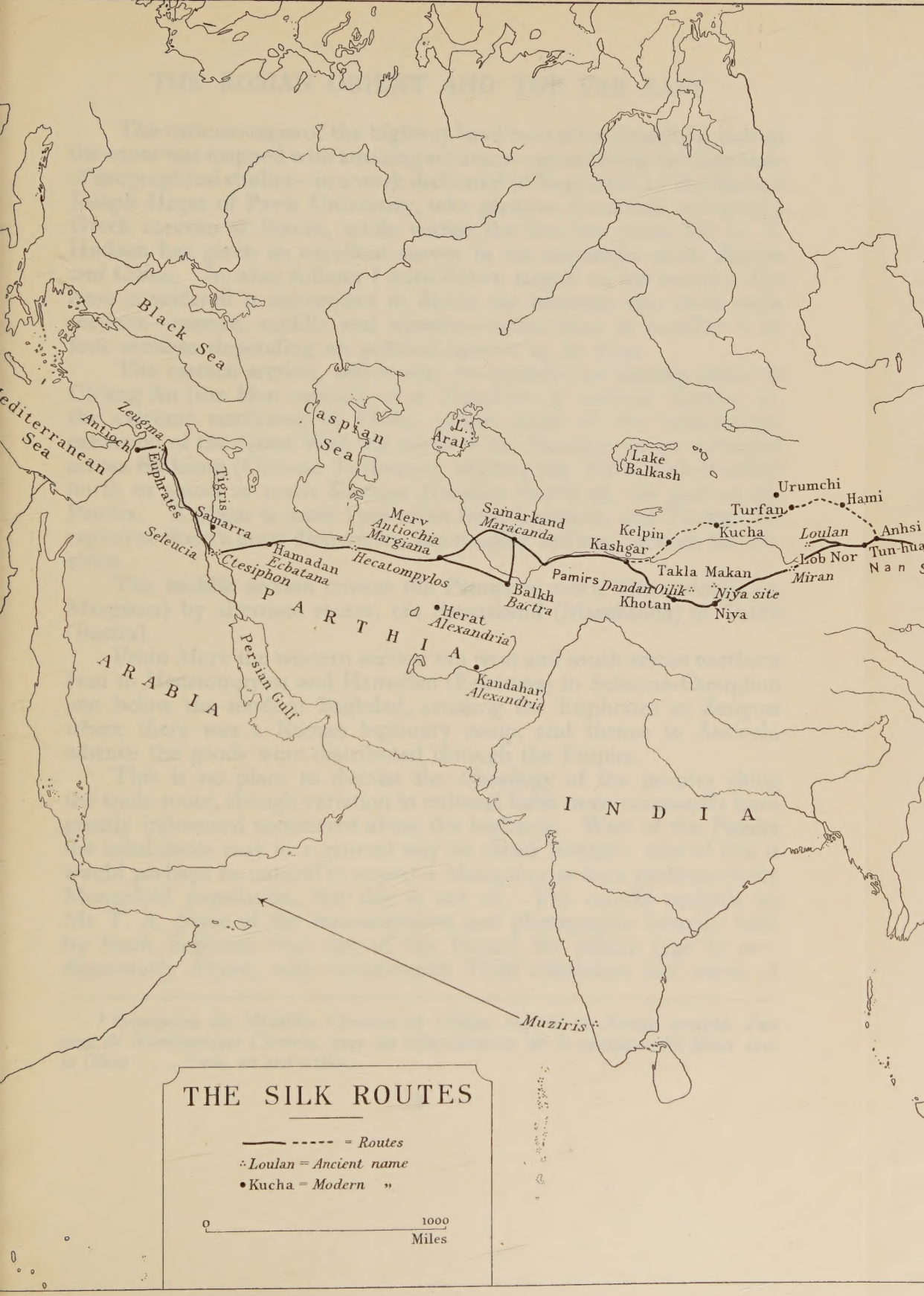
Black Sea
Caspian Sea
Mediterranean Sea
Aral L.
Lake Balkash
Urumchi
Hami
Turfan
Kelpin
Kucha
Loulan
Anhsi
Kashgar
Lob Nor
Tun-hua
Nan S
Takla Makan
Miran
Pamirs
Dandan Oilik
Niya site
Khotan
Niya
Zeugma
Antioch
Euphrates
Tigris
Samarra
Seleucia
Merv
Antiochia Margiana
Samarkand
Maracanda
Hamadan
Ecbatana
Ctesiphon
Hecatompylos
Balkh
Bactra
Herat
Alexandria
PARTHIA
Persian Gulf
ARABIA
Kandahar
Alexandria
INDIA
Muziris
THE SILK ROUTES
= Routes
Loulan = Ancient name
Kucha = Modern "
0
1000
Miles

FIG. 3

The various stages of the highway have been often described, indeed the route was mapped with amazing accuracy—considering the then state of geographical studies—in a work dedicated to Napoleon[5] by the learned Joseph Hager of Pavia University, who pictures the actual arrival of a Greek caravan at Sianfu, while within the last few years Mr G. F. Hudson has given an excellent survey in his important work, *Europe and China*. In what follows I have drawn largely on his account, but have considered it convenient to divide the highway into three main sections—eastern, middle and western—rather than to consider it in four sections depending on political factors, as he does.

The eastern section, which may be regarded as starting either at Ch'ang An (the Han capital) or at Lanchow in western Kansu, *i.e.* the extreme northwest of China, passes south of the westernmost extension of the Great Wall but north of the Nanshan range, westward across Sinkiang (Chinese Turkestan), skirting the Tarim Desert either north or south to reach Kashgar (Issedon Scythica), the gate of the Pamirs. Kashgar is some 1500 miles from Lanchow, and Turfan, the region of Stein's great discoveries, lies roughly halfway between the two cities.

The middle section crosses the Pamirs to reach Merv (Antiochia Margiana) by alternate routes, *via* Samarkand (Marakanda) or Balkh (Bactra).

From Merv the western section ran west and south across northern Iran to Hecatompylos and Hamadan (Ecbatana) to Seleucia-Ctesiphon just below the modern Baghdad, crossing the Euphrates at Zeugma where there was a Roman legionary camp, and thence to Antioch, whence the goods were distributed through the Empire.

This is no place to discuss the ethnology of the peoples along the trade route, though variation in cultural habit must necessarily have greatly influenced commerce along the highway. West of the Pamirs the inhabitants may in a general way be called Iranian ; east of this it would perhaps be natural to expect a Mongol or at least predominantly Mongoloid population, but this is not so. The careful analysis by Mr T. A. Joyce of the measurements and photographs brought back by Stein indicates that east of the Pamirs the ethnic type is predominantly Alpine, with considerable Turki admixture and traces of

[5] *Description des Médailles Chinoises du Cabines Impérial de France, précédée d'un essai de Numismatique Chinoise, avec des éclaircissemens sur le commerce des Grecs avec la Chine . . .*, Paris, an XIII=1805.

Afghan, definitely not Mongol.[6] This may to some extent account for the hold that various items of western thought and habit achieved along the trade route, though too much can be made of the reputed Chinese unwillingness to adopt foreign ideas and practices; for, as noted later, the T'ang period—perhaps that of China's greatest brilliance—was marked by the influx and ready acceptance of foreigners and of foreign (Western and Indian) ideas.

Although there were many factors that tended to the early utilization of the silk route by the Chinese and emphasized their determination to keep it open, it cannot be too strongly stressed that it was neither desire for geographical knowledge nor love of conquest or of gain that dictated China's exploration of the West. It was in the first place due to sheer military necessity, the same need that led to the building of the Great Wall in order to counter the attacks of the barbarians of the North. These were the Hsiung Nu nomads, a Turki-speaking stock, identified with the Huns who invaded Europe a few centuries later. Under the Emperor Wu (141–87 B.C.) the struggle, waged intermittently for a couple of centuries, became a desperate contest, into which was thrown the full strength of the Empire. The hope of finding assistance in the West and so outflanking the Hsiung Nu was the primary purpose of that western journey upon which Wu sent his general, Chang Ch'ien, thereafter maintaining regular touch with Iranian lands.

Hand in hand with the determination to repulse the Hsiung Nu, went the Chinese desire for a supply of those fine Iranian horses which in China were called 'blood-sweating horses', fabled to be the offspring of a heavenly steed, for it was at this time that the Chinese, in response to Hsiung Nu attacks from the North, were developing a new technique of warfare in which cavalry played the preponderant part. The fodder of these noble beasts was alfalfa (*Medicago sativa*), and Chang Ch'ien, being a man of judgment, not only brought back the horses but also alfalfa seeds, leading to the rapid diffusion of the plant through northern China. The best horses appear to have come from Ferghana, now the eastern portion of Russian Turkestan, where alfalfa still yields four or five crops a year and is cultivated up to a height of 5000 feet.[7]

Another gift brought by Chang Ch'ien from the West was the grape used in Ferghana to make wine; the vine was, however, cultivated

[6] T. A. Joyce, 'On the Physical Anthropology of the Oases of Khotan and Keriya', *Journ. Roy. Anthrop. Inst.*, 1903, XXXIII; and 'Notes on the Physical Anthropology of Chinese Turkestan and the Pamirs', *op. cit.*, 1912, XLII.

[7] B. Laufer, *Sino-Iranica* (Chicago, 1919), p. 210.

for centuries in its new home before the Chinese made wine from it, first apparently in the seventh century.[8]

It was Chang Ch'ien's quest for the 'blood-sweating' horses that established the first contacts between China and the Mediterranean world, for the Ta Yuan, the owners of the coveted horses, were the inhabitants of Sogdiana (between Oxus and Jaxartes), while Ta Hsia, the country newly settled by the Ta Yueh Chi, was Bactria, both occupying the furthest extremity of the great Bactrian–Sogdian satrapy of Alexander's Empire. Although at this time the Seleucids had lost their outlying possessions, especially in the East,[9] even the remotest territories had been so thoroughly permeated by Hellenistic influence that they retained something of Hellenism long after this period, though exposed to the enmity of the rising Parthian Empire.[10]

Chang Ch'ien's report has been preserved, perhaps in his own words. Mr Fitzgerald's translation runs as follows :—

> 'Ta Yüan [Kokand, Sogdiana], the people are sedentary [not nomads] and cultivate the soil. They have many superb horses, which sweat blood when they perspire. There are cities, houses and mansions as in China. To the northeast is the country of the Wu Sun [the Ili Valley], to the east is Yü T'ien [Kashgaria]. West of Yü T'ien the rivers flow westward into the Western Sea [the Caspian and Aral, Chang Ch'ien did not distinguish between the two]. From Yü T'ien eastward the rivers flow to the east into the salt swamps [the Tarim river system]. From these swamps the waters flow underground until they reappear as the source of the Yellow River. From the salt swamp to Ch'ang An, the distance is 5,000 Li. The Right horde of Hsiung Nu live between the salt swamps and the Great Wall of Lung Hsi [Kansu]. The Wu Sun [Khirgiz], K'ang Chu, and Yen Ts'ai, who are northwest of the K'ang Chu, and Ta Yüeh Chi, are nomads with customs similar to the Hsiung Nu. Ta Hsia [Bactria] is southwest of Ta Yüan and has similar customs. When your servant was in Ta Hsia he saw large bamboos and cloth of Shu [Szechuan]. When he asked the people of Ta Hsia how they obtained these things they told him that their merchants bought them in Shên Tu [Sind, India], which is a country several hundred li southeast of Ta Hsia, and is a sedentary nation, like Ta Hsia. Both Ta Hsia and Ta Yüan are tributary to An Hsi [Parthia, so called from the

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[8] Laufer, *op. cit.*, pp. 221 *et seq.*

[9] In 255 B.C. or thereabouts, Bactria revolted under Diodotus and gradually became independent, Diodotus II becoming king some time before 227 (*Cambridge Ancient History*, VII, 719, 720).

[10] The Parthians dated their era from the year 247 B.C. (*loc. cit.*). In order to emphasize the high degree in which Hellenistic influence was present in the Satrapy it is worth remembering that both Herat and Kandahar when founded bore the name of Alexandria. I may also refer to a passage by Rostovtzeff bearing on this point (*Cambridge Ancient History*, VII, 157–8).

dynasty of Arsaces]. So far as your servant could judge Ta Hsia is 12,000 li [4,000 miles] from China. As it is northeast of Shên Tu, this kingdom cannot be so far from China '.[11]

Distances are exaggerated (the *li* is a third of a mile) and the source of the Yellow River incorrectly stated, but apart from these errors the report is a plain statement of fact. Chang Ch'ien had, however, so thoroughly experienced in his own person the difficulties of the northern route that he persuaded the Emperor to seek to approach the West overland *via* India, a reasonable enough suggestion at a time when the extreme difficulty of the country between Yunnan and Burmah was unknown; for even at the present day the deep gorges of the Mekong and Salween rivers make this one of the most inaccessible parts of the earth's surface. When it was realized that this route was impossible, interest once more centred on the northern route, and several embassies reached Ta Yüan. For a long time the ruler of this state resolutely refused to hand over any of his celebrated horses, and little progress was made until one Chinese envoy seized some of the best horses and with them set out for China, only to be ambushed by the Yüan, who killed the Chinese and recovered the horses. An attempt to revenge this insult resulted in the defeat of a Chinese army, and it was not until a further army was despatched that an agreed peace was made (102 B.C.), one of the terms being that the Chinese received several of the finest horses of Ta Yüan and a large number of inferior quality.

Some years after the death of the Emperor Wu there came a split in the ranks of the Hsiung Nu, whose northern and southern hordes quarrelled and so weakened each other that the southern leader did homage at Ch'ang An. Chinese vigilance in the west relaxed, and war broke out again during the reign of Han Ming Ti (A.D. 58–77), who was forced to realize that Turkestan must again be brought under Chinese influence. In A.D. 73 Pan Chao, a really great general and administrator, began his career in Turkestan, though it was not until A.D. 77 that he was given a free hand. His policy was to use native levies of what we should now call 'friendlies', with a stiffening of experienced Chinese officers and soldiers :—

'For the next seventeen years Pan Chao carried out this plan with unbroken success. One by one the kings of the Turkestan oases were reduced to obedience, until the whole Tarim Valley was under the peaceful rule of the Chinese viceroy. In A.D. 97, after reducing the last contumacious prince, Pan Chao crossed the T'ien Shan Mountains, and with an army of 70,000 men advanced unopposed to the shores

[11] C. P. Fitzgerald, *China : a cultural History* (1935), pp. 178–9.

of the Caspian Sea. Never before, and never since, has a Chinese army encamped almost on the frontiers of Europe. The whole stretch of country between the T'ien Shan and the Caspian submitted to the Chinese without fighting. More than fifty "kings" acknowledged Chinese overlordship and sent their heirs as hostages to Lo Yang '.[12]

East to West the highway essentially carried silk, and to a much smaller extent furs. The quantity of silk carried was very large; Hudson, referring to the age of the Antonines, *i.e.* the middle of the second century A.D. writes—no doubt with some little exaggeration—of silken fabrics being ' well nigh as familiar in Londinium as in Lo-yang '.[13] We have little knowledge of the goods carried eastwards in exchange; we do not hear of any particular product of the Near East being exported in large quantities, and what records we have suggest that the Roman Empire, at any rate in the early centuries A.D., in the main paid for its silk in gold. A discovery by Stein enables us to appreciate how thoroughly the trade was organized on the Chinese side. On his 1918 expedition he found two strips of undyed cream-coloured silk in one of the refuse-heaps adjoining a post on the old Chinese *limes* west of Tun-huang. The silk could be dated by other objects in the heap to between A.D. 67 and 137. Of this happy find Stein writes that one strip ' bears the ink impression of a Chinese seal, not yet deciphered, and by the selvages retained at both ends is shown to have come from a piece or roll of silk which had a width of about 19.7 inches or 50 centimetres '. The other strip, 12½ inches long and incomplete at one end, bears a Chinese inscription read by M. Chavannes . . . ' A roll of silk from K'ang-fu in the kingdom of Jên-ch'êng; width 2 feet and 2 inches; length 40 feet; weight 25 ounces; value 618 pieces of money '.[14]

Here then on a roll of silk of middle or late Han times prepared for export we have precise indications of its origin, dimensions, weight, and price, while exploration at Loulan provided further evidence that a width of about 50 cm. was a standard export size.[15]

Yet in spite of the regular import, which went on for centuries, it is difficult to quote a single example of Chinese silk discovered in

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[12] Fitzgerald, *op. cit.*, p. 191.

[13] G. F. Hudson, *Europe and China* (1931), p. 91.

[14] Aurel Stein, ' Central Asian Relics of China's Ancient Silk Trade ', *Asia Major· Hirth Anniversary Volume* (1923), p. 368. See also *Serindia* (1921), pp. 373, 374.

[15] Stein, *Serindia, loc. cit.*, and pl. XXXVII.

Europe or the Near East.[16] The magnificent early medieval silken textiles that we find in church and cathedral treasuries are not of the Far East but have been woven in Roman or in Persian lands. In the latter, weaving attained an intense activity, indicating access to large quantities of raw silk. Though it was not until the sixth century A.D. that the eggs of the silk moth (*Bombyx mori*) were brought to Byzantium, in Persia the silk-weaving industry appears to have been in a flourishing state in the fourth century.[17] Once silk became common, fabrics bearing typical Sassanian designs were exported eastwards in considerable bulk. It is only necessary to look at the plates in Stein's *Serindia*, portraying silks discovered in Chinese Turkestan, to be convinced of this; indeed they became so popular that the Chinese produced figured silks in typical Sassanian style. The most striking evidence for this is the celebrated 'hunter' silk of the seventh-eighth century from the treasure of the Horiuji Monastery at Nara in Japan (FIG. 7). The composition is typically Persian, but the fabric was woven in China and seals with Chinese characters are seen on the hindquarters of the horses, in place of the Sassanian star.[18] From Tun-huang Stein has figured a number of silks of great beauty, showing confronted animals in Sassanian style but with Chinese modifications. Two head-pieces for banners, figured in *Serindia* (pl. CXIV), constitute particularly instructive examples of the adaptation of a western textile motif by Chinese hands; this silk is definitely hybrid, containing both obvious Sassanian and Chinese motifs. The design is composed of large circular medallions separated from each other by lozenge-shaped masses of elaborate foliage which almost fill the background. The outer part of

[16] This is perhaps scarcely true at the present day, though it was so a couple of years ago. A very few pieces of silk judged to be of Chinese weave have been discovered in the West; work recently carried out at Palmyra—the great caravan town northeast of Damascus on the northern edge of the Syrian and Arabian desert—appears to have produced some examples (R. Pfister, *Textiles de Palmyra*, Paris, 1934), and it has recently been suggested that a piece of fifth century silk derived from a Rhine cathedral and now in Berlin may have been woven in China (V. Sylvan, 'Eine Chinesische Seide mit spätgriechischen Muster aus dem 5. bis 6. Jahrhundert', *Ostasiatische Zeitschrift*, 1935, N.S. XI, 22–27).

[17] O. M. Dalton, *Byzantine Art and Archaeology* (1911), p. 584.

[18] The 'hunter' type is one of those popular Persian designs in which a mounted hero is shooting wild beasts, 'the whole framed in a medallion and repeated over the surface, the medallions being interlaced or connected by small tangent circles, while the interspaces are filled with formal foliage. The huntsman is usually duplicated so that the composition is symmetrical, the two figures being usually back to back, but turning inwards to release the arrow'. (O. M. Dalton, *op. cit.*, pp. 590–91).

the medallions is occupied by a double circular border with patterns of spaced elliptical rosettes outside and quatrefoils inside. All this is distinctly Sassanian in type, but instead of the interior of the medallion being taken up by confronted animals it is occupied by four pairs of geese, quite naturalistic in treatment, disposed round a central somewhat stylized floral element. The geese are Chinese in treatment, so much so indeed that they immediately recalled to me the birds inlaid on one of the most beautiful of the lacquer boxes in the Shōsō-in. This silk was probably woven in China proper.

Besides the heavy export of gold already alluded to, and in spite of the high rate of destruction which the lapse of two thousand years entails, we have definite evidence in specimens surviving to our own time of the export from the Roman Orient of at least one kind of luxury article, namely glass. Apart from beads, concerning which I shall have more to say later, we can recognise nearly a dozen pieces of early ' Mediterranean '[19] glass still existing in Korea, China, and Japan, and Stein found many fragments of glass (apparently Roman) during his excavations. Realizing when on a visit to the Far East a few years ago that glass might constitute an interesting feature of the incoming trade from the West, I took the opportunity of noting all the specimens of western glass that I was able to see, and also made enquiries as to the occurrence of glass beads and pendants and other small objects believed by the Chinese to be of considerable age. The results were sufficiently encouraging to lead to further study, and with the assistance of a number of kind friends—all specialists in some aspect of the subject, whether in archaeology or chemistry—it has been possible to reach certain interesting conclusions.[20]

[19] We know nothing of the glass-making sites in classic lands in classic times. I therefore use ' Mediterranean ' as a convenient term for glass made by the old civilizations which existed on its shores or in vital contact with it, including Mesopotamia.

[20] I would especially acknowledge my indebtedness to Mr Horace Beck, whose unrivalled knowledge of beads and early glass has been invaluable, as well as to Mr R. L. Hobson, Mr Bernard Rackham and Mr G. Eumorfopoulos for much kindly advice. On the chemical side I have had the advantage of unlimited help from the Scientific Laboratories of the Courtauld Institute of Art (University of London), so that it gives me the greatest pleasure to thank Professor W. G. Constable, the Director of the Institute, and Dr P. D. Ritchie, lately Head of the Scientific Department, for their interest and assistance. I am also greatly indebted to the Rt. Rev. Bishop White, formerly Bishop of Honan, for specimens and advice. I should also like to acknowledge help given by Dr Otto Samson, formerly of the Ethnographic Museum, Hamburg, while for permission to reproduce FIGURES 11 and 12 I must thank the authorities of the British Museum and of the India Office respectively.

In 1929, in Korea, I was shown two perfect glass vessels, pronounced by experts to have been made in the Roman Orient (no doubt Syria) about the fourth century or a little later, excavated by the Japanese from the royal graves of the kings of Silla, the kingdom which for at least seven centuries from about 100 B.C. occupied what is now southeastern Korea. One of these vessels, for the photograph of which I am indebted to Professor S. Umehara, is represented in FIG. 8. These two specimens, with a large dish of 'Roman', *i.e.* probably Syrian, glass (FIG. 9) of the third–fifth centuries A.D., found in China (Honan) and now in the possession of Mrs Margot Holmes, are probably the earliest western glass vessels hitherto discovered in the Far East.[21] Some three centuries later are the half-dozen specimens of 'Arab' glass[22] preserved in Japan in the Shōsō-in at Nara. This houses the property of the Emperor Shōmu, dedicated after his death by his pious queen Kōmio (A.D. 755) to the Todaiji monastery, to which in his lifetime he had been devoted.

So much for glass vessels that were certainly imported, though whether by the transcontinental land route or by sea we cannot say. We can, however, affirm with confidence that glass beads made in the Roman Orient (including Egypt) were traded eastward along the land route. Our evidence for this is twofold : (1) the discovery by Stein in Chinese Turkestan in the neighbourhood of the trade route of beads of western origin, as well as of other objects of glass or frit of western origin ; (2) the recognition by Mr Beck and myself of 'Mediterranean'

[21] I have not included in my examples of early western glass a vase in the Royal Ontario Museum, Toronto, apparently ground out of a lump of glass and decorated with Amazon heads, as this has not yet been adequately studied ; perhaps the decoration is not of the same age as the body of the vessel. Some account will be found in *The Burlington Magazine*, 1922, pp. 225–7.

[22] Five of these specimens, figured in vol. VII (plates 1–5) of the Shōsō-in Catalogue, may be considered to have been made in Mesopotamia, Persia, or possibly Alexandria and be dated to about A.D. 700. I take this opportunity of thanking Messrs W. A. H. King and R. Hinks of the British Museum for information concerning the provenance of these early pieces of western glass.

Besides these there are numerous smaller pieces of glass in the Shōsō-in. I have not seen them myself, but owe my knowledge of them to Professor Jiro Harada, whom I take this opportunity of thanking for his assistance. So numerous are these specimens that it seems unlikely that any considerable number are of western origin. They include 200 glass tips (blue, brown, yellow, and green) for the rods (*jiku*) on which are rolled sutra scripts, and about 62,500 glass beads, while many glass beads of different colours help to compose the headdresses worn by the Emperor Shōmu and his consort. There are also pieces of bead work and lumps of unworked glass.

eye-beads, of a type common in Egypt, among a large number of minor glass objects collected by Bishop White at Lo Yang (the capital of China during the later part of the Chou dynasty). These may perhaps be dated to the middle of the third century B.C., though Bishop White is inclined to place them two and a half centuries earlier.

The Coptic (Egyptian) gilt beads discovered by Stein come from the Loulan and Niya sites in the Tarim desert, which were abandoned not later than the third and fourth centuries A.D.[23] On the other hand, the Lo Yang beads recognized by Mr Beck and myself as being Egyptian in origin are of an earlier type, which may be put down to any time within the last half of the last millennium B.C. The site where they were found in China is generally dated to about 250 B.C., which agrees well with their Mediterranean date. The body of these beads is of pale green-blue glass—translucent rather than transparent—with inlaid 'eyes' having a deep blue centre surrounded by concentric white, brown, and white rings. Not only is there the strongest resemblance, amounting almost to identity, but Dr Ritchie reports as the result of spectrographic analysis that the specimens ' were qualitatively and quantitatively practically identical in composition '.

Beads of approximately the same date have also been found, which are not of glass but which copy the Egyptian glass beads to which I have just referred. Presumably these were made for the poorer folk who could not afford anything so expensive as glass, which was certainly of high value in China. They have a composite core, and are covered with a bluish glaze, the ' eyes ' being produced by local heaping up of brown and white glazes to give the desired effect.

It has been generally accepted on literary evidence that glass was not made in China until the fifth century A.D. Hirth quotes an historical work, the *Pei-shih*, to the effect that in the reign of the Wei Emperor T'ai Wu (A.D. 424–52) traders from the land of the Ta Yueh Chih (Bactria) came to his capital [in what is now Shansi], stating that by melting together certain minerals they could produce glass of any colour. They were told to find the required material in the neighbouring hills, and did this so successfully that the glass they produced was considered superior to that brought from the West. An older work, the *Wei Annals*, states that the foreigners came not from Ta Yueh Chih but

[23] It must not be thought that Stein's discoveries of Egyptian beads were limited to a particular type of Coptic bead. His finds include many other specimens of Roman-Egyptian type.

from Tien Chu kuo, *i.e.* India.[24] Stein refers with approval to the above account in connexion with his discoveries at Loulan,[25] nor does Hudson dissent,[26] but the facts given below indicate that glass was made *in China* at least as early as the third century B.C., if not earlier. This is but another example of what has often happened before, namely, a belief accepted on literary evidence has to give way to the findings of archaeology. Nor do I base my conclusions solely on the specimens that I have handled or that have been analyzed, for much corroborative evidence will be found in the specimens described and figured by Bishop White in his volume, *Tombs of Old Lo-yang*.

The import of vessels of such fragile material as glass seems proof positive of the high value attached to this substance in China, and this view is supported by a number of glass objects of minor importance which have come to light in the last few years. Many of these are of Chinese manufacture, as is indicated by the presence in the glass of the element barium in substantial amount, a remarkable fact, since, so far as I can discover, barium except in traces is not known to occur in Western or Near Eastern glass, ancient or modern, until about 1884, when, as Mr Beck informs me, it was purposely introduced as a constituent of some of the new glasses with high refractive index and low dispersion put on the market by Messrs Schott of Jena.[27]

The beads I shall discuss immediately ; other glass objects of interest are the ear-ornaments (sometimes called capstan beads) and the ceremonial discs (imitating jade) called *pi*, placed under the pelvis of a corpse, which with glass cross-pieces of swords are known from the graves of those who—as we may infer—could not afford jade.

These beads, containing a high percentage of barium, together with a number of glass plaques, constitute a group of objects of Han or late Chou date, both beads and plaques being sometimes inlaid in bronze or silver. They all have in common the interesting feature that the glass body is inlaid with a number of small white rings, producing 'eyelets', with a white outline and coloured centre. Often, but by no means invariably, the white inlay is crescentic rather than circular, producing in the 'eyelets' a peculiar revolving effect.

[24] Hirth, *Chinesische Studien* (München u. Leipzig, 1890), p. 65.

[25] *Serindia*, p. 393.

[26] *Europe and China*, p. 96.

[27] Analyses of two early beads containing barium will be found in a note contributed by Mr Beck and myself to *Nature*, 1934, XXXIII, p. 982. One bead contained sufficient barium to give barium oxide 19.2 per cent.

In the majority of the beads the eyelets are collected into small groups surrounded by an inlaid circle of white glass, which gives an extremely handsome appearance against the generally dark blue or greenish blue of the glass constituting the body of the bead. These beads are of high specific gravity, and spectrographic analysis of a number of beads and one plaque, all conforming more or less rigidly to the type described, showed that they all contained barium.

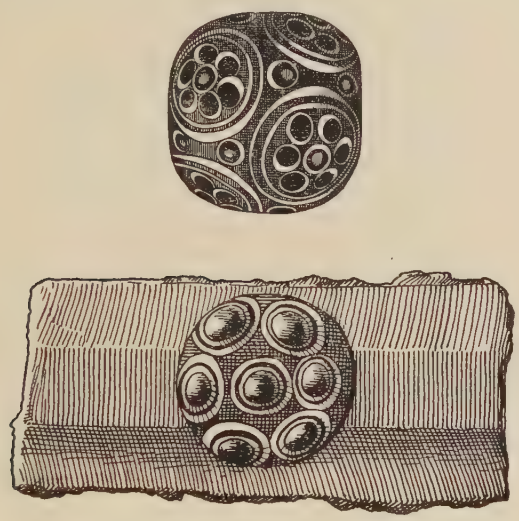

Fig. 4. BEAD ($\frac{1}{1}$) AND PLAQUE (*c.* $\frac{1}{1}$) OF BARIUM GLASS OF HAN OR PRE-HAN DATE

Other pieces of glass, also of supposed Han date, do not contain barium, indicating the existence of more than one centre of glass-making in northern China in early times.[28]

Let us now consider the origin of the pattern on these beautiful beads of barium-containing glass. The resemblance of many of the Lo Yang beads to certain beads of diverse and sometimes unknown origin in the Beck collection, as well as to some of definitely known European provenance in various museums, immediately suggests that

[28] Professor C. G. Cullis, whom I consulted with regard to the presence of barium ores in China, writes that he knows of no record of ' straight ' barium deposits in China, but that there are lead-zinc deposits and mines in plenty and that it is from such that he would expect the barium in the glass to be derived. Actually barium and lead are associated in a number of beads, etc., examined by Dr Ritchie.

the prototypes of the ornament of the Lo Yang beads are to be found in the West; and since, where their provenance is known, the majority of the European beads that I suppose to be the prototypes of the Chinese are recognized by archaeologists as belonging to the Late Iron Age (though a few may date to the end of the Early Iron Age), we have a date for their spread eastwards which accords singularly well with the date of the Lo Yang beads. In fact it would be unreasonable not to admit the high probability that the Chinese beads are imitations, though not slavish imitations, of the European. FIG. 5 shows a number of Chinese beads of the Lo Yang type which I have been discussing, and also sketches of two of the presumed European prototypes.

I have perhaps devoted overmuch space to glass, but no doubt many objects of beauty and rarity reached the Far East, either directly by caravan or ship, or indirectly, passing from hand to hand, being copied and perhaps modified in form in the process of transmission. The bull-headed rhyton is a case in point. I have discussed this elsewhere,[29] so that all I need say here is that there is so close a resemblance between classical, Seleucid or Parthian, and ancient Chinese examples that there can be no doubt that the rhytons of the Near and Far East have a common western origin.

So far I have in the main dealt with events of the Han (202 B.C.—A.D. 221) and the centuries immediately before and after that period. The maximum importance of the silk route, as tapping Central Asia and bringing together the Hellenistic and Chinese worlds, was, however, during the T'ang period (A.D. 621–907) to which in the main belong the treasures of the Shōsō-in. Nevertheless ' Romans ' and Chinese never came into actual contact, owing to the skilful policy of the Parthians, who were determined not to lose their enormous profits as middlemen in the silk trade. Hudson quotes a passage from the Han Annals which, as he says, shows considerable insight :—

> ' The kings of Ta Ts'in [the Roman Orient] always desired to send embassies to China, but the Parthians wished to carry on trade with Ta Ts'in in Chinese silks and therefore cut them off from communication '.[30]

The T'ang world, though no larger, was far better known and more easily travelled than that of any earlier period. We must picture a time when artistic influences from the Hellenistic, Indian, and Iranian

[29] In *Custom is King : essays presented to Dr R. R. Marett on his seventieth Birthday* (Hutchinson, 1936). [30] Hudson, *op. cit.*, p. 84.

worlds were pouring into the T'ang capital, Ch'ang An, frequented by members of the most diverse peoples: pedlars and grooms from Central Asia, ' Greeks ', Arabs, Persians, Japanese ; Hindoos and Jungle men from India (the last presumably in charge of elephants). This list might be extended ; it is no effort of the imagination, for at this period there was little Chinese exclusiveness. The T'ang was perhaps the age at which plastic art reached its apogee ; it was also a time of great wealth and refinement, in which tomb furniture kept all its old importance, and since many of the foreigners were servants, or in one

FIG. 5. CHINESE BEADS OF HAN OR PRE-HAN DATE, WITH PROBABLE PROTOTYPES OF 'EUROPEAN' ORIGIN

form or another ministered to the luxury of the wealthier Chinese, there has been opened to us within the last quarter of a century[31] a gallery of plastic portraits excellent in fidelity and often of great beauty, which show us not only the Chinese of that day but also the many foreigners within their gates. Some even exhibit a touch of caricature—the Armenoid (so-called Jewish) nose seems to have been a source of amusement even in T'ang China (FIG. 10, plate III).

[31] T'ang grave figures, if known to Chinese dealers before this date, were not regarded as of any worth ; they were not collected by the Chinese and did not reach western collections. It was only when, in the course of building railways in northern China, grave mounds were disturbed without disaster to the violators that grave-goods began to be collected and shipped westward in quantity. There are still Chinese collectors who will have nothing to do with these figures, fearing the results.

Nor were these foreigners only servants ; we know of monks and warriors, the latter bearing treasure, come from afar to worship the Buddha. At Chotcho, a Turfan site, there have been discovered religious frescoes, paintings on stucco covering the walls of cave temples, of the same class (though differing in style) as those exhibited in the Oriental Gallery of the British Museum. The most imposing of those

FIG. 6. T'ANG EWER WITH HELLENISTIC FIGURE
Royal Ontario Museum, Toronto

discovered at Chotcho have been published by von Le Coq,[32] and among the paintings of monks and adorers of the Buddha are represented types that clearly do not belong to the Mongol race. Whether these are in any instance actual portrait studies it is impossible to say ; I have the impression that they are best regarded as generalized abstractions, in which what are considered to be the distinctive features of each type are emphasized.

[32] *Chotcho* (Berlin, 1913).

Other evidence of the reciprocal influence of West and East is provided by the frequency of Hellenistic designs on Chinese ceramics and by the export westward of Chinese porcelain, which for centuries affected the pot fabrics of the Near East. Hellenistic influence is well illustrated by the vase in the Royal Ontario Museum, Toronto, reproduced in FIG. 6. This typically T'ang piece bears in relief a dancing figure of Hellenistic type, as well as foliate ornament obviously derived from a Hellenistic design. Of the export of T'ang porcelain to the West, abundant evidence is provided by the excavations at Samarra (some 70 miles above Baghdad), where numerous examples of Chinese stoneware and porcelain have been excavated under conditions that leave no doubt as to their date, namely the ninth century and for the most part the middle of that century.[33] It is worth noting that many of the sherds of local ware (pottery) imitate imported Chinese pieces, and—to go beyond our period—that such imitations continue in the Near East for several centuries, so that the mounds of Fostat (Old Cairo) abound not only with fragments of early Ming celadons but also with local imitations in faience.

In this connexion it is well to emphasize how much more the Chinese of the T'ang period knew of the western world than the western world knew of China. Full accounts of Fu Lin (Byzantium), and of the Arabs and their Prophet have come down to us in Chinese writings. It is not surprising that the Chinese were well informed concerning Islam, for the Emperor T'ai Tsung took into his service the son of the last king of Persia after the Muhammadan conquest of that country. There is an excellent account of Byzantium, obviously the work of a Chinese traveller. He even mentions the mechanical devices that were so much in favour in the eastern Roman capital.

> Fu Lin is the ancient Ta Tsin. It is situated on the Western Sea. To the southeast it borders Persia, to the northeast is the territory of the western Turks. The land is very populous and there are many towns. The walls of the capital are of dressed stone, and more than 100,000 families reside in the city. There is a gate 200 feet high, entirely covered with bronze [the Golden Gate]. In the imperial palace there is a human figure of gold which marks the hours by striking bells. The buildings are decorated with glass and crystal, gold, ivory and rare woods. The roofs are made of cement, and are flat. In the heat of summer machines worked by water power carry up water to the roof, which is used to refresh the air by falling in showers in front of the windows.

[33] F. Sarre, 'Die Keramik von Samarra', being vol. II of *Die Ausgrabungen von Samarra* (Berlin, 1925), pp. 54–62, 101, and plates XXIII–XXIX. Samarra was founded in A.D. 838 and destroyed in 883.

> Twelve ministers assist the King in the government. When the King leaves his palace he is attended by a man carrying a bag, into which any person is free to drop petitions. The men wear their hair cut short and are clothed in embroidered robes which leave the right arm bare. The women wear their hair in the form of a crown. The people of Fu Lin esteem wealth, and they are fond of wine and sweetmeats. On every seventh day [the Christian Sunday] no work is done.
>
> From this country come byssus, coral, asbestos, and many other curious products. They have very skilful conjurors who can spit fire from their mouths, pour water out of their hands, and drop pearls from their feet. Also they have skilful physicians who cure certain diseases by extracting worms from the head.[34]

Let me now return to the caravan route that kept the T'ang capital in touch with the West. Besides objects of rarity and value that passed in bulk or from hand to hand along the highway between the Near and Far East, there were those far more important *imponderabilia*—religion and story. It is not my purpose to discuss the former, but I must mention a piece of painted wood, discovered by Stein at Dandan Uliq in the Takla Makan desert to the east of Khotan and now in the British Museum, which shows the astounding mixture in the religious art of old Khotan. On both sides Bodhisattvas are painted. That on the obverse is a three-headed deity in full Indian style; the figure on the reverse (FIG. 11) affords the most striking contrast, presenting, in spite of its four arms, secular Persian treatment in style and accessories.

The clue to the significance of these two paintings was discovered by Stein many years later when examining the mural paintings of a ruin in southeastern Persia, dating to about the seventh century A.D. The Persian Bodhisattva represents Rustam, the hero of the Persian national epic, and the three-headed figure is a non-Persian rendering of one of the demonic adversaries conquered by Rustam and forced into submission to his king.[35] Here then is a striking absorption of Iranian iconography into the Buddhism of the Far East.

Passing to story, Laufer has shown that the legend of the Diamond Valley reached China from the west. It must be remembered that in the earlier periods the number of gem-stones known to the Chinese was exceedingly limited, while the cut jewel with its qualities of lustre and sparkle did not yet exist, so that the beautiful stones which

[34] Fitzgerald, *op. cit.* pp. 323–4. To a question as to how closely this account could be dated, Mr Fitzgerald expressed the opinion that while accurate dating was impossible it could probably be attributed to the seventh or eighth century.

[35] Stein, *On Central Asian Tracks*, 1933, pp. 64–5.

FIG. 7. HUNTER SILK HORIUJI MONASTERY. NARA. (*See* p. 14)

facing p. 24

FIG. 8. GLASS BOWL, SILLA ROYAL TOMBS, KOREA. (*See* p. 16)

FIG. 9. GLASS BOWL FROM HONAN, NORTHERN CHINA. (*See* p. 16)

FIG. 10. ARMENOID FIGURE, T'ANG PERIOD. (*See* p. 21)

FIG. 11. PAINTED WOODEN PANEL REPRESENTING RUSTAM AS A BODHISATTVA (Stein, *Ancient Khotan*), BRITISH MUSEUM. (*See* p. 24)

PLATE III

FIG. 12. PRINT FROM WOODEN BLOCK DATED 868, PART OF DIAMOND SUTRA SCROLL
BRITISH MUSEUM. (*See* p. 30)

reached the Far East in small quantities from the Hellenistic Roman Orient must have created a profound impression. Laufer points out that the oldest version of the western legend is contained in the writings of Epiphanius, Bishop of Constantia in Cyprus (*circa* 315–403) :—

> ' In his discourse on the twelve jewels forming the breastplate of the High Priest of Jerusalem, the following tale is narrated of the hyacinth. The theatre of action is a deep valley in a desert of great Scythia, entirely surrounded by rocky mountains rising straight like walls ; so that from their summits the bottom of the valley is not visible, but only a sullen mist like chaos. The men despatched there in search of those stones by the kings, who reside in the neighbourhood, slay sheep, strip them of their skins, and fling them from the rocks into the immense chaos of the valley. The stones then adhere to the flesh of the sheep. The eagles that loiter on the cliffs above scent the flesh, pounce down upon it in the valley, carry the carcasses off to devour them, and thus the stones remain on the top of the mountains. The convicts condemned to gather the stones go to the spots where the flesh of the sheep has been carried away by the eagles, find and take the stones '.[36]

The Chinese text contained in the *Liang se kung ki* (Memoirs of the four Worthies of the Liang dynasty), gives the following account :—

> In the period T'ien-kien (502-520) of the Liang dynasty, Prince Kie of Shu (Sze-ch'uan) visited the Emperor Wu, when he told this story : ' In the west, arriving at the Mediterranean, there is in the sea an island of two hundred square miles (*li*). On this island is a large forest abundant in trees with precious stones, and inhabited by over ten thousand families . . . In a northwesterly direction from the island is a ravine hollowed out like a bowl, more than a thousand feet deep. They throw flesh into this valley. Birds take it up in their beaks, whereupon they drop the precious stones '.[37]

This account, for all its brevity, is immediately intelligible in the light of the western legend, with which it coincides in its essentials—the deep valley into which raw flesh is thrown as bait for the birds, who with it carry the stones into accessible positions. Laufer's conclusions is then justified, the Liang version is directly traceable to that of Epiphanius, and was transmitted to China from Fu-lin, part of the Roman Empire.[38]

So too Hellenistic and Chinese folklore mingle in the ideas transmitted from west to east, distorted, and reflected back again, concerning asbestos and the salamander. Strabo and Dioscorides both knew the plain facts about asbestos, its mineral origin and its fire-resisting

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[36] Berthold Laufer, ' The Diamond, a study in Chinese and Hellenistic Folk-Lore ', *Field Museum of Natural History, Publication* 184 (Chicago, 1915), vol. xv, no. 1, p. 9.

[37] Laufer, *op. cit.*, pp. 6–7.

[38] Laufer, *op. cit.*, p. 10.

property ; so did the Chinese of Han times. It is only later that western beliefs concerning the salamander and the phoenix being born of fire or uninjured by fire are confused with asbestos cloth, the latter being further confounded with the real bark cloth of Malaya, which the Chinese knew from their travels in Java and Cambodia, so that finally the incombustible cloth really obtained from the west is either the plumage or pelt of western fire-loving mythical birds or beasts.

These examples show the diffusion and penetrative power—if I may use the phrase—of ideas and beliefs of a curious and recondite character. The examples I have given have nothing to do with the fundamental needs or desires of mankind, though no doubt the wonders of far off lands have always had a strong appeal. How much stronger will this appeal be when the ideas transmitted have to do with the most deep-seated of all longings, the defeat of old age and death.

We may, I think, regard it as *à priori* unlikely that the Elixir Vitae was of Near Eastern origin, since there is no mention of anything of the sort in the innumerable Egyptian texts that have come down to us ; nor is any such substance recorded in the cuneiform texts of the Sumerians or Assyrians.[39] On the other hand, there is the general belief that alchemy (the transmutation of metals) arose among Alexandrine Greeks in the early centuries of our era, later reaching central Europe *via* the Arabs. In Alexandria transmutation had a philosophical basis, moreover the earliest Greek alchemical writings abound in references to Near Eastern authorities and traditions,[40] but although the Leyden papyrus of the end of the third century, from Thebes, indicates how jewellers may imitate gold and silver, there is no reference to the Elixir, and in the West it was only later that the substance for transmuting metals was considered to have the property of prolonging life indefinitely.

The earliest alchemical writers who have left literary remains lived at a period extending from the third to the fifth centuries,[41] when Alexandria was still a great commercial metropolis. A large

[39] The large collection of magical texts, coming down to Coptic times, published by Francois Lexa under the title *La Magie dans l'Égypte antique* (Paris, 1925), contains no text referring either to the Elixir or to the transmutation of metals. With regard to Mesopotamia, my statement is made on the authority of Dr Campbell Thompson.

[40] *Encyclopaedia Britannica*, 14th ed., 1929, s.v. ALCHEMY.

[41] John M. Stillman, *The Story of Early Chemistry* (New York, 1924), p. 150.

portion of the Chinese trade reached Alexandria; and just as legends concerning the Valley of Diamonds and asbestos were transmitted to the Far East, so Far Eastern ideas concerning the Elixir might well be discussed in this western city of philosophers. In China such ideas were already well developed centuries before the beginning of the Christian era, for Ch'in Shih Huang Ti (249–210 B.C.), the 'First Emperor' is recorded as having occupied much of his later life in the search for immortality, to be gained by means of a magic drug believed to exist in the three Isles of the Immortals in the Eastern Sea. These islands, P'eng Lai and its fellows, were not so very remote from the home of mankind, and they had been seen by many though it was impossible to land. Having come under the influence of two celebrated magicians, the Emperor organized an elaborate expedition in search of the islands. The expedition did not return, but this failure did not daunt the Emperor, and to the end of his days he sought to discover some means of contact with the immortals and to gain access to their elixir.

It should be pointed out that long before this jade had been regarded as prolonging life and preserving the tissues from corruption —as indicated by its use in the burials of the great.[42] So too gold, and especially gold obtained by transmutation, could be used to assure immortality :—

> [The wizard Li] Shao-chün said to the Emperor [Wu Ti of Han] : 'Sacrifice to the stove [*tsao*] and you will be able to summon "things" [*i.e.* spirits]. Summon spirits and you will be able to change cinnabar powder into yellow gold. With this yellow gold you may make vessels to eat and drink out of. You will then increase your span of life. Having increased your span of life, you will be able to see the *hsien* of P'ēng-lai that is in the midst of the sea. Then you may perform the sacrifices *fēng* and *shan* and escape death'.[43]

The Elixir Vitae is also mentioned in another important work, the *Ts'an T'ung Ch'i*, written under the pseudonym Wei Po-yang in the second century A.D. Waley thinks it likely that the text may have

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[42] Space is lacking to describe the virtues of jade : though the product of the earth, it is at the same time the essence of Heaven, perfected under high spiritual influence (Laufer, *Jade*, 1912, p. 148). Appropriate emblems of jade were placed upon or within the orifices of the body, *e.g.* the cicada in the mouth, and ceremonial objects of jade were placed within the coffin in contact with the body. Naturally it was only the rich whose grave-furnishings were of jade ; I have already alluded to the glass *pi* (p. 18) of the less well-to-do.

[43] A. Waley, 'Notes on Chinese Alchemy', *Bull. School of Oriental Studies*, 1930–2, vol. VI, p. 2. Chinese words have been omitted and only their transliteration given.

been doctored to give an alchemical interest later, *i.e.* in the fourth century. This view does not imply any considerable re-arrangement, for only one of the ninety sections into which the text is arranged deals specifically with the Elixir, and this in the most definite manner :—

> ' Gold by nature does not rot or decay ;
> Therefore it is of all things most precious.
> When the artist [*i.e.* alchemist] includes it in his diet
> The duration of his life becomes everlasting . . .
> . . . . . .
> When the golden powder enters the five entrails,
> A fog is dispelled, like rain-clouds scattered by wind.
> Fragrant exhalations pervade the four limbs ;
> The countenance beams with well-being and joy.
> Hairs that were white all turn to black ;
> Teeth that had fallen grow in their former place.
> The old dotard is again a lusty youth ;
> The decripit crone is again a young girl '.[44]

We cannot say how early the belief in the life-giving virtue of gold may have arisen ; the first text given above, though attributed to the first century B.C., may be a hundred years or more later,[45] but it is obvious that the belief must have existed at an earlier date than the text. Linking this to what we know of the Elixir in the West, it seems reasonable to infer that the belief originated in China,[46] for these texts that I have cited, coupled with what we know of the accredited properties of jade, seem to prove the existence of a strongly held belief in the Elixir Vitae in the Far East at a time when there is no evidence for the existence of this belief in Europe. Moreover it seems probable that more evidence in favour of this view might be derived from a new examination of Chinese sources, for Laufer's great work on jade was published in 1912.

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[44] Waley, *op. cit.*, p. 11. It might have been expected that jade rather than gold would have been cited in the texts quoted. Mr Waley has suggested to me that the admiration for gold was adopted from the northern nomads at the time when their costume and military tactics were taken over by the Chinese.

[45] Waley, *op. cit.*, p. 3.

[46] In arguing that the Elixir Vitae as known to the western world since the early centuries of our era originated in China, I do not ignore the view put forward by the late Sir Grafton Elliot Smith and Dr W. J. Perry that all ' life givers ' had their origin in the beliefs of Ancient Egypt, which spread across Eurasia at a comparatively early date. I would, however, point out that even if this view be held the diffusion westwards of a conception which was flourishing in the Far East in the latter half of the first millennium B.C. can still be accepted.

The last matters to which I shall refer are those two great gifts of China to the West, paper and printing, the latter for practical purposes impossible without the former. Up to the end of the Chou dynasty writing was done with a bamboo pen upon slips of bamboo or wood. Then came the writing brush of hair, but paper, or near-paper, was invented about the end of the first century A.D., traditionally in the year 105. Rag paper dating from the middle of the second century was discovered by Stein at Tun Huang in the form of eight letters on paper (together with letters on silk and wood). Discoveries at Turfan date to the end of the fourth century. These, together with later documents from Turkestan, show that the paper was manufactured from both raw fibre and worked up material, *e.g.* the remains of old textiles and fishing nets, a discovery indicating that it was not the Muslims of Samarkand who, as commonly held, originated rag paper :—

> ' Rag paper, supposed till 1885 to have been invented in Europe in the fifteenth century, supposed till 1911 to have been invented by the Arabs of Samarkand in the eighth century, was carried back to the Chinese of the second century, and the Chinese record, stating that rag paper was invented in China at the beginning of the second century, was confirmed '.[47]

Gradually the Chinese improved the composition and face of their papers, so that it was a perfected invention that passed from the Chinese to the Arabic world. Thence it reached Baghdad in the eighth century, Egypt soon after, whence *via* Morocco (*c.* 1100) to Spain, and so to Central Europe, having also reached Italy *via* Libya and Sicily.

Without considering the part that seal-stones and rubbings from graved stones (lithography in its simplest form) may have played in the evolution of printing, let me say that there may be some doubt as to the accuracy of a reference to printing in China at the end of the sixth century, and emphasize the fact that the earliest datable block-print extant is of A.D. 770 and comes from Japan. Block-printing must, however, have been practised in China sufficiently long before this for it to have attained such considerable development in Japan, since the relics of A.D. 770 (for a number have been preserved) are of the series of one million charms ordered by the Empress Shotoku. Examples of these preserved in the Horiuji monastery at Nara in Japan, in the British Museum, and in the museum at Leipzig, show that

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[47] Thomas Francis Carter, *The Invention of Printing in China and its spread westward* (New York, 1931), p. 5. To this work I gratefully acknowledge my indebtedness for this short account of early paper and printing.

the strips of paper used are about eighteen inches long by two wide, each bearing thirty columns of five characters each.[48]

Japan produced no books at this time, or if she did they have not come down to us. The earliest printed book (*i.e.* scroll) that can be dated with certainty is Chinese and was produced in May 868—no primitive piece of printing like the Japanese charms but a superb version of one of the holiest of Buddhist texts, the *Diamond Sutra*—though there is reason to believe that a copy of the *Kuan Yin Sutra* in the British Museum may be even earlier, of 8th century date (FIG. 12).

The T'ang dynasty came to its end within a hundred years of the printing of the *Diamond Sutra*, and it is not my purpose to attempt to carry my sketch of the contacts of West and East beyond the years of that dynasty. A kindly critic has suggested that I should conclude with a summary. This seems unnecessary, for I have done little more than touch on each of the subjects that I have put before you. I may, however, express the opinion that early contacts between Europe and the Far East will, as knowledge advances, prove to have been far more numerous than has hitherto been generally accepted.

[48] Carter, *op. cit.*, p. 36.

Prehistory and the Romantic Movement

by Stuart Piggott

In a stimulating essay published a few years ago,[1] Mr O. G. S. Crawford indicated how the archaeology of the nineteenth century was a natural outcome of the social and industrial background of the period, and resulted from a combination of circumstances which gave opportunities for the investigation of Man's remote past. If we examine the study of British prehistory during the eighteenth and early nineteenth centuries in its relation to contemporary fashions in literature and the visual arts, we shall I think, see that the accurate and precise science which some of us would consider modern archaeology to be began merely as an episode in the history of taste less than two hundred years ago.

To examine in detail any phase of the changing literary tastes of this period would entail erudition far beyond my powers, and space exceeding an entire number of Antiquity. This essay must then be considered only as a superficial glance at certain aspects of archaeology in England during a period which we may roughly indicate as from 1720 to 1820, when that change of outlook known as the Romantic Movement came about. It is impossible here to do more than indicate some of the features of Romanticism that have a bearing upon the contemporary archaeology, and I must assume that the broad outlines of the Romantic Movement are familiar to my readers—a subject so vast, and with such intricate and far-reaching ramifications, that the study of even a part could form the work of a lifetime. But the main features are obvious—that turning away from the clear calm daylight of the classical ideal to a vague exciting barbarian gloom for inspiration : two quotations from minor poets will show the contrast better than a page of explanation. Here is Lady Winchilsea writing ' Upon my Lord Winchilsea's Converting the Mount in his Garden to a Terrace ' (1713) :—

> Complete in all its late unequal frame,
> No loam or lath does now the building shame
> But graceful symmetry without is seen,
> And use with beauty are improv'd within.

[1] The Dialectical Process in the History of Science ', *Sociological Review*, April-June, 1932.

while here is David Mallet enjoying himself on his *Excursion* (1726) :—

> Behind me rises huge an awful Pile
> Sole on this blasted Heath, a Place of Tombs,
> Waste, desolate, where Ruin dreary dwells
> Brooding o'er sightless Sculls, and crumbling Bones.

These extracts have all the unfairness of being chosen for contrast, but they illustrate the point. Blasted heaths rather than garden terraces were to be the haunts of the Muse, the polite was to give way to the picturesque, shaven lawns to shaggy landscapes. It must be emphasized that this changed outlook was not confined to a small literary circle. The extent to which it affected ' every department of life and art ' can be gathered from Mr Kenneth Clark's erudite and entertaining study *The Gothic Revival*—a book to which my indebtedness is shown by the frequent quotations from it in this essay—while Mr T. D. Kendrick indicated many years ago[2] how the interest in the Druids and Druidism, which constituted so important a part of archaeology in the eighteenth and early nineteenth centuries, was directly due to the general trend of thought brought about by the Romantic Movement.

We can trace the growth of ideas favourable to British archaeology in more than one direction. I have already, while hardly touching upon the edge of Romanticism, been forced to mention landscape, for the changed attitude towards natural landscape, towards the picturesque, is one of the dominant features of Romanticism. Clark[3] has indicated the importance that the Lake District had already assumed before Gray's visit in 1770—an importance maintained in the nineteenth century under Wordsworth's dominance ; and he has drawn attention to the tours of those travellers who, like Dr Syntax, were in search of the Picturesque. And here we have the beginnings of field-archaeology, that peculiarly English branch of the subject, for it is essentially a part of our landscape. Barrow and hill-fort, standing-stone and hut-circle, are as much common objects of the countryside as the forests and mountains, and those more obvious relics of antiquity—the ruined abbey or castle—without which no truly picturesque landscape could be considered complete. It became fashionable for the country gentleman to make tours on horseback—even perhaps to such remote and barbarous parts as North Wales—and not infrequently diaries of these tours were written and published. ' Tour writing,' says Byng,[4] one of

[2] *The Druids* (1927), chap. I. [3] *The Gothic Revival*, 78.

[4] *The Torrington Diaries*, vol. I, 1781–1794 (1934), 69.

the most entertaining travellers of them all, ' is the very rage of the times ' and one need only mention a few of the better known of these writers—Young and Gilpin, Pennant and Hutton, are names that immediately come to the mind. In these tours, by men with no pretensions to archaeological learning, we find that antiquarianism takes a large part. ' The Gothick ' is of course the predominant interest : for his ' Tour to the West ' of 1781 Byng provided a title-page in which one looks on to an open landscape through crumbling arches and mouldering vaulting, for all the world like Bentley's fantastic illustration to Gray's ' Elegy ' of half a century earlier, but on his travels he visits Rollright, Maiden Castle and the Plas Newydd megaliths in Anglesey, for which he makes a strangely modern plea for proper preservation.

But the professed antiquary had been out on horseback with his notebook for a great many years before Byng and his contemporaries went on tour. Most famous of course was William Stukeley,[5] who in the first quarter of the eighteenth century decided that ' if ruminating upon antiquities at home be commendable, travelling at home for that purpose can want no defence ',[6] and set off on those journeys the first fruits of which was the *Itinerarium Curiosum* of 1724, a book whose purpose was ' to oblige the curious in the Antiquities of Britain : it is an account of places and things from inspection, not compiled from others' labours, or travels in one's study '.[7] Nevertheless it is important to remember that, pioneer though Stukeley was, his work did not stand alone. An Anglesey parson, Henry Rowlands, produced an account of the prehistoric (mainly megalithic) remains of his own parish in 1723 under the title of *Mona Antiqua Restaurata*, while of course Aubrey (a Romantic before his time if ever there was one) had written his *Monumenta Britannica* in the middle of the seventeenth century ; and in 1738 we see the publication of Wise's famous *Letter to Dr Mead Concerning some Antiquities in Berkshire*. By the 1750's archaeological literature that was the product, not of research into classical history in study or library, but of field observation, was firmly established : the indefatigable Stukeley produced his *Stonehenge* in 1740, his *Abury* in 1743, while among other works Borlase's *Antiquities of Cornwall* (1754) stands out. The Society of Antiquaries had been founded in its

[5] For a study of certain aspects of Stukeley's life and work see ANTIQUITY, 1935, IX, 22–32.

[6] *Itinerarium Curiosum*, 2.

[7] *op. cit.*, Preface.

present form in 1718 and in its publications devoted not a little space to English prehistory.

It is not impossible that some of this archaeological activity in England was the result of that incipient nationalism that Clark has noticed among the less creditable products of the Romantic Movement.[8] Borlase in his preface however hints that his study of Cornish antiquities arose from lack of opportunity to investigate those of classical times. Those making the Grand Tour, he observes, ' returning captivated with the Medals, Statues, Pictures and Architecture of Greece and Italy, have seldom any relish for the ruder products of ancient Britain. My situation in life (whatever my inclinations might be) confin'd me to a different track ; I saw my self plac'd in the midst of Monuments, the works of the ancient Britains, where there were few Grecian or Roman Remains to be met with ; my curiosity therefore, could only be gratified by what was in its reach, and was confined to the study of our own Antiquities '.

What was the background to all this interest in prehistory ? Romantic poetry was establishing a firm hold—I have already quoted from Mallet's *Excursion* of 1726—and although Dyer's *Fleece* (which, for all its Virgilian flavour, has an underlying country realism closely akin to Wordsworth) was not published until 1757, in 1726 he wrote *Grongar Hill*, a romantic poem with ivy-clad ruins playing an important part. Gray, perhaps the most important of the Romantics, was travelling on the Continent with that scarcely less significant figure, Horace Walpole, and his ' little fat black spaniel ' that was devoured by a wolf in the Alps. In 1747 Walpole bought Strawberry Hill ; by 1753 it was transformed into a gothical fantasy. Non-classical archaeology, were it represented by Goths or Druids, Stonehenge or Salisbury Cathedral, was popular, and the archaeologist on the way to becoming an established figure in the gallery of eighteenth century English eccentrics.

Mr Kendrick, as I have said, pointed out the fundamental importance of the Romantic Movement in the revival of interest in the Druids in the eighteenth century, but we must realize that a public that regarded the whole series of architectural forms from Romanesque to Tudor as a single Gothic style would not be in a position to make nice distinctions between the more subtle differences of the non-historic ages. The situation is admirably presented in a letter from Gray to Mason, in connection with the latter's *Caractacus* (published 1759) :—

[8] *The Gothic Revival*, 89.

> I expect to see Caractacus completed, and therefore I send you the books you wanted. I do not know whether they will furnish you with any new matter . . . I told you before that (in a time of dearth) I would borrow from the Edda, without entering too minutely on particulars . . . However, on second thoughts, I think it would be still better to graft any wild picturesque fable, absolutely of one's own invention, on the Druid-stock ; I mean on those half dozen of old fancies that are known to be a part of their system. This will give you more freedom and latitude, and will leave no hold for the Critics to fasten on.[9]

So we see that a revived interest in Druids is of wider application than the word may suggest ; it was in fact an interest in all prehistoric archaeology that was becoming general, however vaguely and confusedly expressed, and of course closely allied all the time to the more easily grasped archaeology of Gothic architecture. Megalithic monuments, because more obviously architectural than any other type of prehistoric antiquity, were clearly the most favoured candidates for attention, and since Stukeley's lamentable and all too successful efforts on their behalf, the Druids had these for their own. What more could one need to satisfy one's romantic desires ? A Druid's cell, ivy-clad and dank, was really almost as good as that other romantic but rheumatic retreat, a hermit's grot, so beloved of the period. ' Nothing, it was felt ' (says Miss Sitwell) ' could give such delight to the eye, as the spectacle of an aged person with a long grey beard, and a goatish rough robe, doddering about among the discomforts and pleasures of Nature ', nor can it be chance that whereas volume 4 of Grose's *Antiquities of England and Wales* (1773–87) has on its title-page a vignette of a Druid and Stonehenge, volume 3 is adorned with a charming picture of a hermit in his cell. It has been the fate of the megaliths, particularly the great stone circles, to be the victims of Romanticism up to the present day.

With the beginning of the nineteenth century we have a taste for prehistoric archaeology well established as a companion to the all-pervading interest in Gothic. It is usual to lay stress on the importance of Scott's novels in turning the public taste in this direction, but I agree with Mr Clark in thinking that by the 1820's such taste was already fully formed. To the prehistorian, the most important landmark in early nineteenth century archaeology is the publication of the first volume of Sir Richard Colt Hoare's *Ancient Wiltshire* in 1812—that magnificent record of field-work carried on in the finest Stukeley tradition. At first one looks in vain for any evidence of the influence

[9] Gray to Mason, 19 December, 1757.

of the contemporary Romanticism on the monumental volume that opens with all the solemnity of a major prophet—' We speak from facts, not theory. Such is the motto I adopt, and to this text I shall most strictly adhere. I shall not seek amongst the fanciful regions of romance, an origin for our Wiltshire Britons . . . '. And yet, on the title-page, garlanded round with a very fanciful border of arrowheads and beads, appear the words ' AUNCIENT WILTESCIRE '—that Romantic affectation of archaistic spelling that starts with Spenser and persists in ' Ye Olde Tea Shoppe '. Even Colt Hoare could not be wholly unaffected by the contemporary Romanticism. When digging barrow 9 on Oakley Down in Cranborne Chase a thunderstorm came on which would ' ever be remembered both with horror and pleasure by those who were present ', and which induced the Rev. William Lisle Bowles to write a poem complete with a ' white-haired Druid bard sublime ' which was printed in full by Sir Richard in his august folio.

By now Archaeology and Romanticism walked hand in hand, familiar twin figures in the English scene. How inevitable that Higgins's *Celtic Druids* (1829) should have a lithographed title-page whereon a blasted oak flanks a crumbling stone inscribed ' And like the baseless fabric of a vision . . . ', overgrown with nettles, thistles and toadstools, while in the background Stonehenge is outlined against the sunset. It is without surprise that one finds Mr Miles, describing *The Deverel Barrow* (1826), indulging in sweetly melancholy meditations—' On a spot so hallowed by the Wing of Time, the imagination may vividly depict the rude but solemn rites attendant on the burial ; the blazing pile flinging its lurid beams around . . . ' and so on, with ' mystic songs of bards ', ' frantic yells ' and ' wild and piercing shrieks of expiring victims '. And at this point I may perhaps touch on a curious aspect of the early barrow-diggers' mentality which I believe is reflected in their works. A morbid interest in graves and skeletons is well known as a psychological phenomenon which has often been exploited in literature and art. In English literature perhaps the most famous example is Blair's *Grave*, written before 1731, and we have the authority of Dean Farrar that ' few essays have had wider circulation among admiring readers than the vicious and tawdry rhetoric of Harvey on the Tombs ' (*Meditations among the Tombs*, 1746). This feeling was inevitably latent in certain aspects of the Romantic Movement—it comes out for instance in Bentley's designs to Gray's poems, and in a thousand other places, notably in the ' Tale of Terror ' type of story beginning with the *Castle of Otranto* and continuing in the works of

Lewis, Mrs Radclyffe, and others—and I cannot but detect traces of conscious gloating over the paraphernalia of Death in some of the early archaeological records. It is implicit in that curious effusion *The Barrow Diggers*, written 'in imitation of the Grave-Diggers in Hamlet' (1839). Is it to this mental attitude, probably more often unconscious than deliberate, that we are to attribute the fact that until scientific excavation began with Pitt-Rivers, prehistoric settlement sites remained almost entirely neglected in favour of wholesale barrow-digging? One has of course to reckon with the strong acquisitive instinct of the collector which Crawford has shown in its proper social background in the essay I have mentioned, which would be better satisfied with the complete grave-furniture than with the broken scraps from a midden, but I think this other factor must be allowed some weight.

The history of prehistoric archaeology in the middle of the nineteenth century falls outside the scope of this essay, for henceforward it takes its place, with Gothic Architecture, as part of Victorian culture. Haverfield[10] saw a connexion between the growth of interest in the study of Roman Britain at all events, and the religious movements—'the antiquary and the tractarian', he remarks, 'have much in common'. And as he points out, archaeology at this time 'moves along lines characteristic of the early Victorian age through the formation of societies'. The 40's and 50's saw the beginnings of that most English of all institutions, the local archaeological society, which with its lectures and excursions played so important a part in the leisured life of Victorian England and which is today the backbone of our local archaeological research. The atmosphere of the archaeological excursion of ninety years ago can be perfectly recaptured from a contemporary newspaper report of the Cambrian Archaeological Association's visit to Strata Florida in 1847.

> The scene at the Abbey was at one time a most interesting one, several ladies having joined the party. Architects and draughtsmen were measuring and sketching portions of old buildings, and one dignitary of the Church was transferring the resemblance of the gateway to his sketch-book, whilst another dignitary lent an attentive ear to some amusing anecdote of bygone days . . . All seemed to vie with each other who should do the most towards the advancement of the object of the excursion; and whilst intelligent commoners were measuring the building, an enthusiastic nobleman might be seen busily washing the tiles and ornaments for removal and preservation.[11]

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[10] *Roman Occupation of Britain*, Lecture I.

[11] *The Welshman*, 17 September, 1847, quoted by Evelyn Lewes in *Out with the Cambrians*, 1934, p. 30.

With the local societies came the local museums—the beginnings of scientific collections of material, but still sometimes oddly Romantic. No finer example of the marriage of Prehistory to the Gothic Revival can be quoted than the famous Blackmore Museum at Salisbury, built in 1864 and happily preserved in practically its original state today. Here the very fine collections of comparative prehistory and ethnography formed by William Blackmore and E. T. Stevens were housed in a setting of exuberant Gothicism—a hammer-beam roof richly coloured, encaustic tiles, wall-cases with Gothic heads and elaborately stencilled in bright coloured designs, free-standing cases with vermilion and gilt battlements [12] In this scene of Puginesque splendour the Fisherton palaeoliths or the Danish flint axes look oddly out of place—the scientific typological series struggling amidst the Romantic fog in which the science had its origin.

[12] Battlemented cases, roughly contemporary, exist at Devizes and Dorchester museums, and probably elsewhere. They might well have roused the ire of the Cambridge Camdenians, who were so incensed at the pews, 'half-roofed like country villas and sometimes even *embattled*' which in response to popular taste were being placed in churches a few years earlier. (*A Few Words to Churchwardens*, 1842, II, p. 6).

The Coleraine Hoard

by Harold Mattingly and J. W. E. Pearce

with a note by T. D. Kendrick

EARLY in 1854, in the townland of Ballinrees, about three and a half miles west of Coleraine, county Londonderry, Ireland, a labouring man unearthed from a considerable depth in peaty soil one of the most remarkable hoards of Roman silver ever found in our isles. Though no trace remained of any urn or other container, it was apparent, both from the depth of the deposit and from the closeness with which the whole was packed together, that it was indeed a hoard, no mere chance series of deposits.

The hoard is of exceptional interest from several points of view :

(1) it is a noteworthy example of the rare type of hoard, in which silver coin and silver plate are combined. In Ireland of the Roman period it is unique.

(2) it includes within itself a very late hoard of Roman silver coins,[1] to which we can now assign a probable date with much more assurance than could the original commentators on the hoard.

(3) there is sufficient of characteristic style and craftsmanship preserved in the fragments of silver plate to give this hoard, with its possibilities of fairly close dating, an importance of its own in the history of art.

The Coleraine hoard was at once published, and has been discussed on more than one occasion.[2] Nevertheless, it has seemed well worth the while to accept the kind invitation of the Editor of Antiquity and

[1] From the circumstances of finding it appears possible that the coin hoard may be less uniform than some others and may represent the amalgamation of a number of smaller hoards carried off as loot.

[2] *Ulster Journal of Archaeology*, 1854, pp. 182 ff (J. Scott Porter : note on the coins by James Carruthers) : republished in *Num. Chron.* 1854–1856, xvii, 101 ff with some minor alterations, which cannot now be checked. The hoard was discussed by Haverfield in *English Historical Review*, 1923, xxviii, pp. 1 ff (' Ancient Rome and Ireland '), by Curle in *The Treasure of Traprain*, 1923, who there has collected the evidence for silver hoards of a similar character, and by Ridgeway in *Journal of Roman Studies*, 1924, pp. 123 ff (Niall ' of the Nine Hostages ', etc.)

to publish the hoard again, in order to place a well-illustrated account in the hands of the modern reader and, at the same time, to add some observations that should materially affect our judgment of the hoard.

We begin with the coins. The total number is stated at 1506—a correction of an original estimate of 1937. There was one single large piece (' miliarense ') of Jovian ; all the rest were ' siliquae ', ranging from Constantius II to Constantine III. The distribution over reigns was as follows :[3]

Constantius II	22	
Julian II	75	
Jovian	1	(and 1 ' miliarense ')
Valentinian I	34	
Valens	71	
Gratian	85	
Valentinian II	17	
Theodosius I	41	
Magnus Maximus	52	
Flavius Victor	8	
Eugenius	37	
Arcadius	142	
Honorius	141	
Constantine III	5	
	731	

There were, further, 751 unidentified, of which 537 were clipped, 194 slightly clipped.[4] A further 195 ' siliquae '—Valens, Gratian and Honorius—are said to have been found subsequently near the same place. In the original description some sixty of the coins assigned to reigns were described as ' clipped ', something like twice that number as ' partly clipped '. The rest of the hoard was described by Mr Carruthers as ' in a high state of preservation '. As far as it is possible today to check these opinions, we cannot endorse them in either case.

[3] The coins are described in the works just quoted as ' denarii '. We now call them by the agreed name of ' siliquae ', which is probably correct (Mickwitz's view that the coin was really a ' half-siliqua ' seems very difficult to accept). Some of the smaller pieces were described as ' quinarii ' or, as we should say, ' half-siliquae '. There is apparently only one example of the real half-piece, a ' Victoria Augg.', of Arcadius : the rest were simply badly chipped pieces. The number of coins of Julian II is given in the *Ulster Journal of Archaeology* as 68, in the *Numismatic Chronicle* as 75 ; no number is given for Constantine III in the former.

[4] The number is given in the *Ulster Journal of Archaeology* as 684 ; 557 clipped, 127 partially clipped.

PLATE I

THE COLERAINE HOARD: FRAGMENTS OF SILVER DISHES, SLIGHTLY OVER HALF-SIZE

(see also PLATES IV and V)

British Museum

facing p. 40

PLATE II

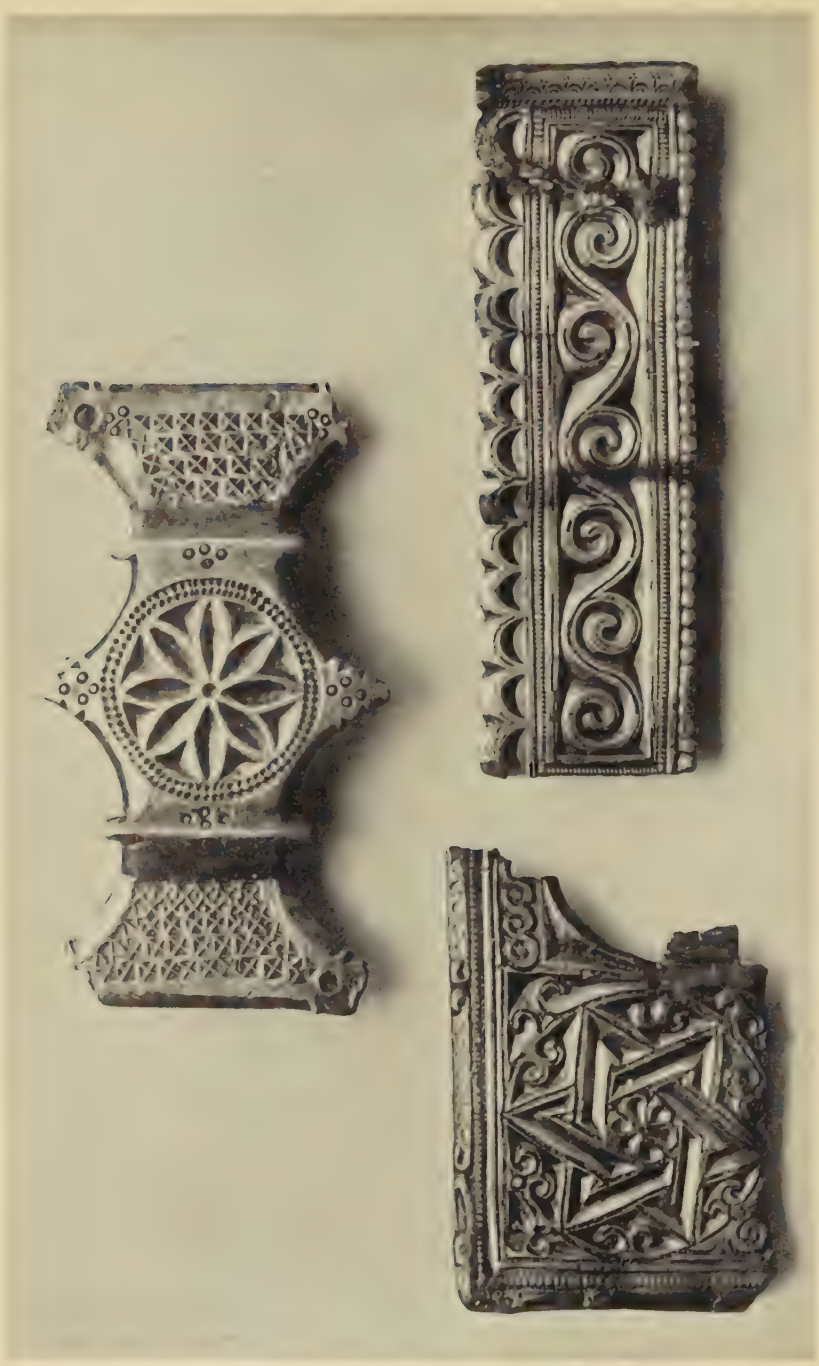
THE COLERAINE HOARD: SILVER INGOTS AND SPOONS, SLIGHTLY OVER HALF-SIZE

(See also PLATE VI)

British Museum

THE COLERAINE HOARD: SILVER BOWL (Height 4½ inches)
British Museum

PLATE IV



THE COLERAINE HOARD: FRAGMENTS OF SILVER DISHES. SLIGHTLY ENLARGED. (See PLATE I)
British Museum

THE COLERAINE HOARD FRAGMENTS OF SILVER DISHES, ENLARGED × 1½. (See PLATE I)

British Museum

THE COLERAINE HOARD: FRAGMENTS OF SILVER INGOTS, ENLARGED × 1½. (See PLATE II)

British Museum

We should suppose that few, if any, of the coins had entirely escaped clipping, and that the majority showed some trace of wear.[5]

A limiting upper date for the hoard is at once given by the presence of coins of Constantine III, 407–411. Even apart from this, the hoard has other features, which definitely point to at least as late a date. Mr Pearce, in a paper in the *Numismatic Chronicle*,[6] has investigated and made clear the criteria by which the date of hoards of late Roman silver can be determined. The chief points to note are:

(1) the proportions of coins of Theodosius I, Arcadius and Honorius; and

(2) in a special sense, the proportions of the same Emperors at the key-mint of Milan, the great mint of 'siliquae' at the turn of the fourth to fifth century A.D.

Let us glance at a few examples:

A. NORTH MENDIP HOARD (*Num. Chron.* 1915, pp. 433 ff).

Theodosius I	Arcadius	Honorius
178	36	12
(Milan) 11	18	12

Mr Pearce suggested a date early in 395. Today, perhaps, we might urge that a few years are required, after the death of Theodosius I, to enable Honorius to equal his father's numbers in the mint of Milan.

A slightly later class is represented by:

B. ICKLINGHAM I (*Num. Chron.* 1908, pp. 215 ff: 1936, pp. 257 ff).

Theodosius I	Arcadius	Honorius
53	47	21[7]
(Milan) 2	23	21

Arcadius has drawn up on Theodosius I, and Honorius on Arcadius. Both sons have outdistanced their father at Milan. The date must be a few years later than A.

C. TERLING (*Num. Chron.* 1933, pp. 145 ff).

Theodosius I	Arcadius	Honorius
27	44	30
(Milan) 1	18	29

[5] This statement is based on a careful examination by Mr Pearce of the 83 Coleraine coins, which were kept by the British Museum. The *Ulster Journal of Archaeology* gives the number of clipped coins as 657, of partially clipped as 199. Even if the clipping did not extend further, the hoard is classed at once as one of the few that show the practice of clipping far advanced.

[6] 1933, pp. 170 ff.

[7] If Icklingham III hoard is really part of the same as I the figures for Milan will be Theodosius 1, 2, Arcadius 63, Honorius 90.

Arcadius has passed Theodosius, Honorius is drawing up to Arcadius, and, at Milan, has actually passed him. Late Milan issues, mainly after A.D. 395, are beginning to predominate. The date must be a few years later than B.

It is to this class (c) that Coleraine clearly belongs, with the figures :

	Theodosius I	Arcadius	Honorius
	41	142	141
(Milan)	3	44	53

The real figures for Milan, could we read all the mint marks, would be very much higher : the coins of Honorius would be almost exclusively of that mint. It should perhaps be placed a little later, as the shift of proportions of coins of the three rulers, noted at Terling, has at Coleraine gone a stage further.

It will now be apparent that the date, 407, has no significance for Coleraine, except as an absolute upper limit. The general composition of the hoard is such that we cannot imagine its having been brought together before *c.* 410 at earliest. It needed time for the issues of the Emperor Honorius and of the mint of Milan to acquire the dominating position that they hold in this hoard. To the earliest possible date of formation we have to make an addition, which we have no means of estimating, to cover the looting and re-burial of the coins. There is one other fact that strongly suggests later date. The clipping of ' siliquae ' offers some curious problems, into which we cannot enter here, but numismatists are agreed that the practice only set in acutely some way on in the reign of Honorius. We might well argue that it was only when fresh supplies of ' siliquae ' from the Italian mints ceased to arrive that clipping became prevalent in the West. Taking all facts into consideration, we may suggest *c.* 420 as the earliest probable date, and associate our hoard not with Niall 'of the Nine Hostages',[8] but with one of his successors, who shared in those violent raids on Britain that finally drove Vortigern to call in the Saxon to his aid. There is nothing in the coin evidence to make an even later date than 420 impossible ; we have no certain means of fixing the lower limit.

It has been argued that the composition of the Coleraine hoard, with its mass of ' siliquae ' of Honorius, suggests Continental, not

[8] As did Ridgeway in *J.R.S.*, 1924, pp. 123 ff. Niall, according to tradition, died in 405 and is really too early to come into consideration.

British, origin. A wider knowledge of British hoards[9] enables us today to reject this line of argument. There is no reason, as far as the coins go, to reject the most obvious hypothesis, that the hoard came from the exposed West of England.

Our hoard, as a whole, undoubtedly represents scrap silver—vessels broken up and reduced to elementary form, perhaps for the use of a silversmith at his craft.[10] But, as the coins survive as coins in large numbers, it seems rash to deny absolutely that their proper use was known and may even have been contemplated for the future. If not, why did not the man who broke up the vessels reduce the coins themselves to bar form ?

A general idea of the silver plate may be obtained from PLATES I–VI. One piece—an open silver bowl (PLATE III)—has been successfully reconstructed. The rest remain fragments. There are portions of the rim of a heavy vessel—a fragment of a cover of a box, with ornaments of interlaced triangles, flower and scrolls—a narrow strip, with a series of spirals as its main pattern—a large square piece of very fine workmanship, with ornaments of interlaced chains and square patterns of large star and flower, and small star-shaped flowers with dotted circles in the angles ; an irregular-shaped fragment with a bare head to the right—a buckle with flower patterns in centre and lattice-work at the sides, and, finally, some plain bars and other ingots of ' battle-axe ' shape, two inscribed and one uninscribed. The more important pieces are dealt with in the note by Mr T. D. Kendrick, pp. 44–5.

On the ingots a word may even now be added. The Coleraine pieces were discussed by Heinrich Willers in *Numismatische Zeitschrift*, (1899, pp. 365 ff).[11] He found from analysis that the bars were not of pure silver[12] and noted some irregularity in the lettering and the absence of definite official formulae. He concluded, therefore, that these ingots were made unofficially by private workmen in their ' officinae ', but were probably tolerated as fit to take the place of official products. The ' Patricius ' of one ingot (PLATE VI, 1)—a good fifth-century name—

[9] Cp. especially the Terling hoard, quoted above, and the South Ferriby hoard (*Num. Chron.* 1935, pp. 254 ff). Ridgeway's argument in the paper, quoted above in n. 8, rested partly on the supposed Continental origin of the hoard.

[10] Perhaps it is wiser not to make the assertion quite as confidently as does Mr Scott Porter in his original publication (*Ulster Journal of Archaeology*, p. 185).

[11] Cp. also Sir Arthur Evans in *Num. Chron.* 1915, pp. 488 ff.

[12] The silver, however, was only between 1 and 2 per cent. baser than that of bars found in Hanover that were certainly official.

will have been the owner of a private 'officina' of this kind. The CVR MISSI of the other inscribed ingot (PLATE VI, 2) must, according to Willers, represent a proper name. But the analogy of the inscription on a gold bar recently found in Siebenburgen,[13] CVR THESS IN ARC AVR OB PROB ET SIGN, where CVR THESS is read as 'curator thesauri sacri', suggests a similar rendering for CVR MISSI here—'curator missionum' (?). A technical use of 'missio' or similar word to mean, perhaps, 'issues', is not attested, but is surely not impossible. The point seems to be that 'curator' has an official sound and that the possibility of its use on one of these bars forbids us to be very sure that the bars are unofficial. The fineness of the silver and the quality of the lettering may not have been uniform in all parts of the Empire; the shape of the bars is correct for official bars of silver. Bars of this kind were produced, it seems, not only at mints striking coin, but at other centres of financial administration, for example, at Londinium in the fourth century A.D., and we are at liberty to imagine that the robbers of our hoard may have swept into their net scraps from the last remaining stores of Roman administration in the West.

At this point, having faintly suggested an entanglement of the problems of our hoard with the general problems of the Roman departure from Britain, we may hand over Coleraine to the next relief of research.

NOTE ON THE SILVER, by T. D. KENDRICK

The decorated fragments in this hoard represent a far less magnificent collection of silver vessels than that in the Treasure of Traprain, and do not illustrate to the same extent the wide range of Late Antique ornament that the silversmiths of the period were accustomed to use. There are, for example, only two fragments (PLATE V, left) of silverware that bore figure-subjects, one showing a head of a satyr in relief, and the other the arm and shoulder of a vigorously moving body. The rest of the decoration is very ordinary—typical geometrically conceived patterns with an ostentatious regularity and symmetry. The fragment of the dish (PLATE V, right) with the square panels containing an acanthus spray and an all-over compass-pattern shows the flat and rather insipid quality that much of this work possesses. The simple guilloche that surrounds these panels contributes to the effect of a close carpet-like spread of ornament, and it is plain enough that we have here a decorative system that had for a long time been thoroughly established

[13] G. Elmer in *Numismatičar*, Belgrade, 1935, p. 19: the find-spot is not certain.

in Roman art by the designers of textiles and mosaic pavements. The small fragment with the familiar device of the interlocked triangles in a medallion (PLATE IV, left) belongs to the same series of ' pavement ' patterns and represents a style that was freely used throughout the whole Empire. On the other hand, pieces that have more of a west European character are the handle (PLATE IV, top) and the strip with the scalloped edge and panelled spiraliform scroll (PLATE IV, right). This last, which has much of its original gilding left and is nielloed, shows the deep and sharp-angled relief of the so-called ' chip-carving ' technique, and it belongs to a variety of late Roman metalwork that was the source of a well-known barbaric style of the early Migration Period. The fragment in the Coleraine hoard is closely allied to several gilt and nielloed silver mounts that occur in a purely German context, for example at Nydam, and this hard spiraliform scroll passes almost directly on to Teutonic ornaments like the early Saxon equal-armed brooches and buckles. The handle belongs to the same school of silverwork, and it is chiefly interesting for the stamped ornament at each end, which is also to be connected with 4th and 5th century work abroad on the western limes. The finest surviving ornamental piece, the silver bowl (PLATE III), represents yet another decorative style in which thin-line devices such as dotted rings, chequered lozenges, star-patterns, and formal plant-scrolls, are arranged in an open free-style order. This, like the chip-carving pieces, has a north-western character, and may very well be, like them, of Romano-British workmanship.

The effect of these types of Late Antique ornament on the subsequent art of the British Isles is not of very great importance, and it concerns mainly the Saxon series of antiquities of the ' chip-carving ' kind, on which are rosettes and scrolls and niello-work that are directly based on the Late Roman style. It is true that simple compass-pattern designs such as the rosette (PLATE IV, top) and the quatrefoil pattern (PLATE V, right), which were already of great antiquity, survived in the Celtic lands for a long time after the Roman Period, particularly in Ireland where they remained in use until at least the 8th century. But we can scarcely posit, even for Ireland, any phase of considerable duration in which the Late Antique ornamental style alone prevailed. On the contrary, the main achievement of the early Dark Ages was a complete transformation of this style, a rejection of the staid and symmetrical regularity of the Roman patterns in favour of the whirring, rotating, and lively Hiberno-Saxon designs.

Vasa Samia

by F. O. Waagé

IT appears to be necessary for the human mind to temper the rigours of the scientific method with certain irrationalities. In archaeology, terminology usually performs this function of safety-valve, as witness the treatment of Greek place-names or the use with ' B.C.' of the ill-matched ' A.D.', especially in the monstrosity ' such and such a century A.D.' When these aberrations cause no confusion of meaning, the logical mind can only hold its breath and swallow hard, knowing that reform is hopeless, but when they lead to equivocation and thereby violate the primary rule of scientific terminology, no protest can be too emphatic.

It is against the use of such a term, often employed by students of Roman pottery, that the writer wishes to present a protest in the form of a new definition. One may think first of the word *sigillata*, so frequently written as a labour-saving substitute for the phrase ' red-glazed Roman pottery ' or ' good Roman ware '. Of course only a minority of the pots thus dubbed are *sigillata* in the ancient and actual meaning of the term, but its misapplication is so generally accepted that no confusion results. Entirely different is the case of the equally common and practically synonymous phrase *vasa Samia* or its English equivalent. Here not only is the phrase wrongly used in the light of its common ancient meaning, but it is wrongly used in the light of the modern discovery of the genuine Samian ware. Let the facts be presented forthwith.

The Literary Evidence

The occurrences of the phrases ' Samian vases, pottery ', etc., in Latin literature are more frequently referred to than read. Their ancient significance, however, can be determined only by consulting all the texts which, accordingly, are assembled (see appendix, p. 54) in as great fullness as the problem demands.

The sources fall clearly into two groups, on the one hand the strictly literary, in which the mention of Samian pottery is secondary and casual (I–X, XII–XIV, XVI), and on the other hand the descriptive (XI, XV, XVII, XVIII) in which it is purposeful and a primary subject of

discussion. From the date and manner of the literary references and from the contents of the descriptive references, the following conclusions can be drawn :

1. The first significant fact is that in every literary text, a substitution of the word ' Samian ' by the word ' clay ' will not only fail to obscure the pertinence of the allusion but in several instances will clarify it. In five of the nine earliest references, the context, by stressing the meanness of the ware or the poverty of its owners, opposes the term ' Samian ' vases to the unexpressed but immediately apprehended counter-thought ' metal ' vases. This opposition is quite evident in II, IV, V, IX, and X, and it becomes specific in VII with the actual mention of silver service. In the past, students have usually quoted two of the texts from Plautus (I, III) alone, but alone they encourage a wholly erroneous interpretation of the word ; when read in the light of even the other Plautine verses its true significance is revealed. The modern supposition that Samian vases were of fine, thin and fragile ware is directly contradicted by the several deprecatory passages (IV, V, IX, XIV). Nowhere is there implied a contrast between different kinds of pottery ; always is there a reference to the common nature of all pottery or to its inferiority in comparison with metal ware. In the case of the Gauls (VI, XII, XIII), for instance, the notable fact is not that they used a particular kind of *testa*, but that it was of clay ; to emphasize the very inappropriate material of the instrument the writers employ a redundancy, *Samia testa*, that is ' clay potsherd '.[1] It is unnecessary to press a conclusion which the reading of the references leaves sufficiently clear. ' Samium est testeum ', says Nonius ; more or less than that it was not. It is possible, therefore, to make this statement of fact :

> As early as the beginning of the second century B.C. the adjective *Samius* had become established in Latin speech and literature as a cliché with the meaning ' clay ', and it continued to be so used throughout antiquity to emphasize the peculiar qualities of earthenware vessels and their lowly nature in contrast with metal vases.

2. The second significant fact is that the only independent descriptive source, Pliny the Elder, mentions Samos as a producer of

[1] By the time of the later Empire, the pleonastic nature of this particular phrase had been forgotten and ' Samian ' was interpreted de novo as ' sharp ', witness Nonius, ' Samium rursum acutum ' (XV). This common-sense explanation may have been inspired by the ancient use of a *Samius lapis* for polishing metal (Pliny the Elder, *Historia Naturalis* XXXVI, 21 (40), 152).

tableware (XI). The word used is the adjective *Samia* but the context leaves no doubt that here it has full geographical value and cannot signify merely ' clay ' as it does, for instance, when Pliny quotes the stock phrase in mentioning the Galatian *Samia testa* (XII). Furthermore, Pliny specifies that Samian ware was esteemed ' etiam nunc ' and that the other wares ' retinent hanc nobilitatem ', whereby the Samian is definitely credited with a long history and with priority over the other wares. It is possible, therefore, to make this second statement of fact :

> In the third quarter of the first century after Christ, pottery table-service of praiseworthy quality was being manufactured on Samos and exported to Italy, where it had already been known for a considerable but undefined extent of time, although at least before the manufacture of Arretine ware, which began, as we know, in the second half of the first century B.C.

These two statements exhaust the possibilities of definite conclusions to be drawn from the texts. Any further deductions must necessarily be somewhat speculative, but inasmuch as several important questions remain without factual clarification, their possible resolution must receive mention.

3. (A). The early use of ' Samian ' as a popular synonym for ' clay ' has suggested that it was a borrowing from the Greek. The fact that the expression has not been recorded in Greek literature by no means completely invalidates the suggestion in view of the possibility that the usage may have been a very local one. This, of course, would not explain its origin but merely shift the scene of action, probably from central to southern Italy. (B). The second quotation from Isidorus (XVIII) records the opinion of some writers that Samian pottery took its name from a clay called ' Samian ' found near Rome. While regretting the loss of the original source, one can credit little authority to an explanation which raises more problems than it settles, viz., the date and consequent validity of the source, the existence of an Italian clay bearing a Greek name and the possibility that the clay was named from the pottery rather than the reverse. (C). In modern times it has been suggested that Isidorus wrote ' Samnite ' and not ' Samian ', the latter thereby being explained as a corruption of the former ; some manuscripts give *samina*. But the Latin of ' Samnite ' is *Samnis*, *-itis* or *Samniticus*, of which only the least used case and number of the first form could possibly suffer corruption to *Samnius*. This suggestion, based upon the double error of the erroneous reversible equation

' Samian '=' Samnite ', may be discarded permanently. (D). Pliny's first reference (XI) gives the specific information that pottery from Samos was in use at least as early as the first century B.C. The litterateurs from the beginning of the second century B.C. consistently use the word ' Samian ' to describe vases as being merely of clay. There is no acceptable explanation of the origin of the word ' Samian ' in this literary usage except that it is the adjective of ' Samos '. Since only one Samos, the large Aegean island, can come into consideration, the literary use of ' Samian '=' clay ' must be a derivation from the normal use of ' Samian '=' of Samos ' and it must have originally described pottery exported from the island of Samos. It is possible, therefore, to make this statement of probability : as early as the second half of the third century B.C., the island of Samos was exporting a specific pottery ware to Italy which was naturally known as Samian ware ; for certain reasons, however, either in Greek southern or Latin central Italy, the Samian vases were regarded as offering the clearest contrast to metal vases so that the term ' Samian ' finally came to mean simply ' clay ' in common parlance ; in that meaning it was used by Roman authors from the beginning of the second century on, whereas the Samian pottery itself continued to be imported at least into the second half of the first century after Christ.

4. Why did ' Samian '=' of Samos ' become ' Samian '=' clay ' ? The reason must have been one which made the earthen material of the ware particularly prominent ; fine quality alone could not do so for this would contrast merely with other clay vessels. Only one kind of pottery fits the case—clay vases which imitated those of metal. It has long been suggested that the *vasa Samia* of literature were Hellenistic moulded bowls (the so-called ' Megarian ' bowls) ; the suggestion was inevitable in a generation of archaeologists who, moved by a primitive eye, cherished any decorated or inscribed potsherd no matter how insignificant or worthless and threw the plain, unmarked, but so often far more valuable fragments on the dump. *Vasa Samia*, however, cannot have been exclusively or even predominantly moulded bowls. The limitation to one shape would not have resulted in the use of the general term *vasa* ; the unusual meaning of ' Samian '=' clay ' would not have arisen to mark out only one from among the several wares of nearly identical moulded bowls, and among these several known wares, the excavations on Samos would have revealed the one native to it, whereas in the pottery thus far published there is not one sherd of these elsewhere so common vessels. Indeed the fact that ' Samian ' did

come to mean ' clay ' is an excellent indication that the vases were not moulded bowls but plain, wheel-made tableware ; both the wares and the numbers of the metallic moulded bowls grew increasingly numerous during the third century wherefore no one ware could have been particularly prominent. Wheel-made tableware, on the other hand, tended to carry on the heavy, fourth-century forms with little if any direct copying of metal shapes ; thus a ware which did copy metal vases in pottery table-service would have been conspicuous and very liable to such comparison as could have resulted in its distinctive geographical name coming to be synonymous with ' clay '. Therefore, with the aid of modern knowledge of Hellenistic pottery, it is possible to make this statement of probability : the term *vasa Samia* first designated wheel-made table-service which copied the shapes of bronze and silver vases, and this at a time when such service was not imitated by other pottery wares, whereby the concept ' Samian ' was thus sharply contrasted in the popular mind with the concept ' metal ', and ultimately came to mean merely ' clay '.

5. The original *vasa Samia* have not been identified in Italy, where, in any case, plain Hellenistic and Roman pottery has been much neglected. It has just been shown that metal imitations are probably to be sought. One may add further, that they probably were covered with black, not red, glaze. Third century pottery was still predominantly black ; a little had begun to be partially oxidized to a mottled hue. ' Pergamene ' ware seems to have been the only pottery which was so fired as to possess a uniform dark red colour at that time.[2] A red ware would have been cause for comment, above all in Italy, which lagged behind Greek lands in adopting the new colour, and since colour is never alluded to in any mention of Samian vases, it must have followed the prevailing fashion. Vases imitating metal would certainly have followed the age-old tradition of black glaze. Therefore, again with the aid of known Hellenistic pottery, it is possible to make the following statement of probability : the original Samian vases were covered with black glaze and it was only after the phrase *vasa Samia* had become a stock expression for ' clay vases ', quite disassociated from the Samian pottery itself, that the colour changed to the red which Pliny's tableware from Samos must have displayed.

So much for the several points of certainty and probability which

[2] For this ware, see G. W. Elderkin and others, *Antioch on the Orontes* I : *Lamps, Pottery, Metal and Glass Ware*, by F. O. Waagé, pp. 68 ff.

can be drawn from the texts alone or with a little help from modern research. The earliest *vasa Samia*, probably black and metallic, are still unknown. One question remains, are its descendants mentioned by Pliny also unknown ? Up-to-date ceramists know that they are not, as can readily be proved.

The Archaeological Evidence

I. In 1904, R. Zahn published the pottery from Priene in the volume of that name.[3] The largest group of red-glazed Roman pottery formed a distinctive ware characterized by an absorbent light red (orange-red) glaze, a cinnamon-coloured and pronouncedly micaceous clay, a variety of noticeably but not slavishly metallic shapes in which low rather than high feet were the rule, and rectangular potters' stamps bearing Greek names and words. On the bases of the frequent mention of Samian vases in Latin literature, of the occurrence of the micaceous ware at other sites, of the overwhelming predominance of it at Priene and of the extreme proximity of Samos to Priene, Zahn suggested that this was the Samian ware of the Romans. It is indicative of the treatment which plain pottery has received from Mediterranean archaeologists with few exceptions that this logical deduction, as well as Zahn's hypothesis concerning Pergamene ware, was made neither the subject of further study nor the basis of classification for further publications of pottery for over twenty years.

II. In 1929, T. Knipowitsch published Roman pottery from Olbia, identifying the same micaceous ware and following Zahn in calling it Samian.[4]

III. In the same year W. Technau published Greek and Roman pottery found on Samos itself.[5] The excavations revealed that the characteristic micaceous clay was the typical native clay of the island, thereby proving the correctness of Zahn's deduction and adequately identifying red-glazed Samian pottery of Roman date. Later publication of early Greek pottery has further confirmed the identification of this clay as Samian.[6] In view of the literary evidence, the discovery of kilns or wasters will add only the capping stone of proof.

IV. In 1933 the writer published the Samian pottery found

[3] T. Wiegand and others, *Priene*. Berlin, 1904, pp. 430 ff.

[4] T. Knipowitsch, *Materialien zur römisch-germanischen Keramik* IV, I *Die Keramik romischer Zeit aus Olbia*, Frankfurt a. M., 1929, pp. 12 ff.

[5] W. Technau, *Athenische Mitteilungen* 54 (1929), pp. 48 ff.

[6] R. Eilmann, *Athenische Mitteilungen* 58 (1933), p. 47.

during the first season of excavation in the Athenian Agora, listing all occurrences of the ware known to him at that time.[7] A few further sites were added in a note to a description of pottery from Antioch and a discussion of some pottery from Beth-Shan, including a few Samian pieces, will appear shortly in the *Quarterly Statement* of the Palestine Exploration Fund, written in collaboration with Professor Howard Comfort.[8]

It is unnecessary to recapitulate the results of these researches but several explanations and additions must be appended. In the first place, none of the Samian pottery published thus far can be dated by external evidence ; the Olbia material forms no exception to this, unfortunately, since the evidence is too uncertain and not specific. No piece of Samian is demonstrably pre-Augustan and several of its shapes resemble those of Italian (Arretine) ware of the first half of the first century after Christ. Yet it certainly is the ware of which Pliny speaks and to whose priority over Arretine, among others, he makes definite allusion, so that it is highly probable that some of it goes well back into the first century B.C. Only very careful excavation will clarify the problem. Incidentally, there is no evidence of any significant copying in either direction between Samian and Arretine ; similar shapes are due solely to similar metal prototypes, for even where the resemblance is closest, the smoother treatment and low feet of the Samian cups make marked contrast with the sharply ridged features and high feet of the Arretine. Samian vases are never *sigillata* (in the proper, not the common, meaning of the term) ; none are moulded, all are wheel-made and their only decoration is an occasional double spiral or rosette applied to a flat rim. Samian potters' stamps are rectangular (only a very small number of even the latest pots are stamped *in planta pedis*) and the names or words, with a few rare exceptions, are Greek. Unpublished Samian vases found in graves during Professor T. Leslie Shear's excavations at Corinth show that the ware was imported there at least well into the second century after Christ.

There is one more fact to note, namely, the occasional occurrence of Samian vases fired in a reducing-oven so that the glaze became a uniform glossy black and the clay gray. Samos has produced a large number of such fragments, several have been observed by the writer at Athens and Corinth and it is possible that some black sherds from

[7] F. O. Waagé, *Hesperia* II (1933), pp. 291 ff.

[8] G. W. Elderkin and others, *Antioch on the Orontes* I, p. 72, note 35.

Ephesos are also Samian.[9] None of this *terra nigra* is necessarily earlier than the bulk of red Samian ware but its production in an age when red pottery was the rule in Mediterranean lands is highly significant. It can be interpreted only as a survival from the preceding age of black pottery and therefore it not only offers confirmation of the probability that the early Samian ware of Hellenistic times was black, but also furnishes a definite link with the early representatives of the ware.

Conclusion

1. The word ' Samian ' was used by Latin writers from the beginning of the second century B.C. as a stock term equivalent to the adjective ' clay ', at first especially to emphasize the fragility or the inferiority of earthenware vessels in comparison with those of metal. This popular meaning arose from the circumstance that the ware of Samos, which must have been known in the second half of the preceding century, was exceptional among the usual black tableware of the period in imitating metal shapes and that it thereby caught the focus of all contrast between pottery and metal wares. Accordingly, the common modern use of the term ' Samian ware ' to mean ' good, red-glazed Roman pottery ' does not follow the common ancient use to mean simply ' clay vases ' and so is incorrect.

2. The Samian (here=of Samos) vases which Pliny the Elder says were still employed in his day have been identified, and Samian ware now takes its place in ceramic history as a definite and distinctive ware of known provenience whose Hellenistic products remain to be discovered, but whose representatives of the Roman age are found to occur over a wide area of the Mediterranean. Accordingly the term ' Samian ' when applied to pottery must be reserved for this particular ware alone ; the modern use of the term as defined above is therefore unqualifiedly erroneous and must be dropped.

3. Since the earliest Samian ware has not yet been identified, it behoves every excavator of a Hellenistic site to give most careful attention to all the plain, black-glazed pottery in an effort to find it. Since the later products of the ware are known, every excavator should identify them and seek for evidence to date them ; this obligation does not apply in the Mediterranean region alone, for a ware which reached Nubia in the south and Russia in the east may very well have travelled also to Britain in the north.

[9] *Athenische Mitteilungen* 54 (1929), p. 48 ; Österreichisches Archäologisches Institut, *Forschungen in Ephesos* I, p. 175.

APPENDIX

I. PLAUTUS (*c.* 254–184 B.C.), *Bacchides* II, 2, 22–24 :
CH. Eho, an invenisti Bacchidem ? PI. Samiam quidem.
CH. Vide, quaeso, ne quis tractet illam indiligens :
Scis tu ut confringi vas cito Samium solet.

II. PLAUTUS, *Captivi* II, 2, 39–42 :
. . . PHIL. Immo edepol pertinax ;
Quin etiam ut magis noscas : Genio suo ubi quando sacruficat,
Ad rem divinam quibus est opus Samiis vasis utitur,
Ne ipse Genius surripiat. proinde aliis ut credat vide.

III. PLAUTUS, *Menaechmi* I, 2, 68 :
ME. Placide pulta. PE. Metuis, credo, ne fores Samiae sient . . .

IV. PLAUTUS, *Stichus* V, 4, 11–13 :
Suom quoique decet : quibus divitiae domi sunt, scaphio et cantharis,
Batiocis bibunt : at nos nostro Samiolo poterio
Tamen bibimus nos, tamen ecficimus pro opibus nostra moenia.

V. LUCILIUS (*c.* 168–103 B.C.), *Satyrarum liber* XIII (5) in Nonius Marcellus IV, 398, 26 :
et non, pauper utei, Samio curtoque catino.

VI. LUCILIUS, *Satyrarum liber* VII (21) in Nonius IV, 398, 33 :
hanc ubi vult male habere, ulcisci pro scelere eius,
testam sumit homo Samiam atque ibi ' anu noceo ' inquit ;
praeceidit caulem testisque una amputat ambo.

VII. ANONYMOUS (*c.* 80 B.C.), *Rhetorica ad C. Herennium* IV, 51, 64 :
' Apage ', inquit, ' aedes commodavi, familiam dedi : argentum quoque vult ?
Tametsi hospites habeo, tamen utatur licet, nos Samiis delectabimur '.

VIII. CICERO (106–43 B.C.), *De Re Publica* VI, 2, 2 in Nonius IV, 398, 28 :
Oratio Laelii, quam omnes habemus in manibus, quam simpuvia pontificum dis immortalibus grata sint Samiaeque, ut is scribit, capudines.

IX. CICERO, *Pro Murena*, 36 (75) :
Is, cum epulum Q. Maximus P. Africani, patrui sui, nomine populo Romano daret, rogatus est a Maximo, ut triclinium sterneret, cum esset Tubero eiusdem Africani sororis filius. Atque ille, homo eruditissimus ac Stoicus, stravit pelliculis haedinis lectulos Punicanos et exposuit vasa Samia, quasi vero esset Diogenes Cynicus mortuus et non divini hominis Africani mors honestaretur ; . .

X. TIBULLUS (*c.* 54–19 B.C.), II, 3, 41–48 :
praedator cupit immensos obsidere campos,
ut multa innumera iugera pascat ove ;
cui lapis externus curae est, urbisque tumultu
portatur validis mille columna iugis,
claudit et indomitum moles mare, lentus ut intra
neglegat hibernas piscis adesse minas.
at mihi laeta trahant Samiae convivia testae
fictaque Cumana lubrica terra rota.

XI. Pliny the Elder (23–79 after Christ), *Historia Naturalis* xxxv, 12 (46), 160 :
maior pars hominum terrenis utitur vasis. Samia etiam nunc in esculentis laudantur. retinent hanc nobilitatem et Arretium in Italia et calicum tantum Surrentum, Hasta, Pollentia, in Hispania Saguntum, in Asia Pergamum. habent et Trallis ibi opera sua et in Italia Mutina, quoniam et sic gentes nobilitantur et haec quoque per maria, terras ultro citro portantur, insignibus rotae officinis.

XII. Pliny the Elder, *Historia Naturalis* xxxv, 12 (46), 165 :
Samia testa Matris deum sacerdotes, qui Galli vocantur, virilitatem amputare . . .

XIII. Martial (*c.* 38–102 after Christ), iii, 81, 3 :
Abscisa est quare Samia tibi mentula testa, . . .

XIV. Tertullian (before 160-after 220 after Christ), *Apologeticus* xxv, 13 :
Frugi religio et pauperes ritus et nulla Capitolia certantia ad caelum, sed temeraria de cespite altaria, et vasa adhuc Samia, et nidor ex illis, et deus ipse nusquam.

XV. Nonius Marcellus (third-fourth centuries after Christ), iv, 398, 26–399, 2 :
Samium est testeum. Lucilius *Satyrarum lib.* xiii (5) : see v above.
M. Tullius *de Republica lib.* vi, (2) : see viii above.
Samium rursum acutum. unde et samiare dicimus acuere, quod in Samo (insula) hoc genus artis polleat. Lucilius *Satyrarum lib.* vii (21) : see vi above.

XVI. The Vulgate (*c.* 400 after Christ), *Isaia* 45, 9 :
Vae qui contradicit fictori suo, testa de samiis terrae : numquid dicet lutum figulo suo : Quid facis, et opus tuum absque manibus est ?

XVII. Isidorus of Seville (*c.* 560–640 after Christ), *Etymologiarum* xx, 4, 3 :
Fictilia vasa in Samo insula prius inventa traduntur, facta ex creta et indurata igni ; unde et Samia vasa : postea inventum et rubricam addere et ex rubra creta fingere.

XVIII. Isidorus of Seville, *Etymologiarum* xx, 4, 6 :
Samia vasa quidam putant ab oppido Samo Graeciae habere nomen. Alii dicunt cretam esse Italiae, quae non longe a Roma nascitur, quae samia appellatur.

Scandinavian Rock-engravings

by Grahame Clark

THE discovery of the cave art of France and Spain did more than anything else to make the ordinary man aware of the immense significance of the discoveries made in the field of pleistocene man during the nineteenth century. In many ways the superior of the conventionally accepted ' art ' of the day, the paintings and engravings captured the imagination of people to whom flints and bones meant little. They made real the existence of man in the ice age, and through them men could look into a primitive world, situated not in the distant places of the earth, but close to the centres of modern civilization.

The revelation of the early rock-engravings and paintings of Scandinavia had none of the epic flavour attaching to the discoveries in France and Spain ; no polemics raged around the authenticity of finds which already fitted into the modern view of human development. The Scandinavian art can therefore be studied in a clear atmosphere, through which we can discern a world of hunting and of hunting magic.

The engravings belong to two groups—the Arctic group, reflecting a life of hunting and fishing, with which we are mainly concerned ; and the Bronze Age group, best known from northern Bohuslän. The Arctic art embraces a number of styles, but it will be sufficient to distinguish two main groups, styles A and B. Style A is remarkable for its simplicity and for its naturalistic rendering of animal forms. The animals are shown severely in profile, all internal features such as eyes or body mouldings being omitted from the design ; the effect was in many cases increased by the large scale to which they were drawn, an elk and a whale at Klubba for example exceeding 14 and 20 feet respectively in length. It is evident that the artists were primarily concerned with outlining single beasts or pairs of beasts—only in rare instances is there any suggestion of a scene. Often, therefore, one finds the engravings scattered singly or in pairs, but frequent also are such palimpsests as we recall from the cave art of the west. Fig. 1 illustrates part of the field of engravings at Leiknes, where we see that figures have

been engraved on a suitable rock-surface without regard to outlines already present. It is perhaps from noting the effects produced by such palimpsests that a peculiar shorthand method of producing a new beast from a pre-existing one was adopted. This trick of adding the head of one beast to the rear of another in such a way as to produce two

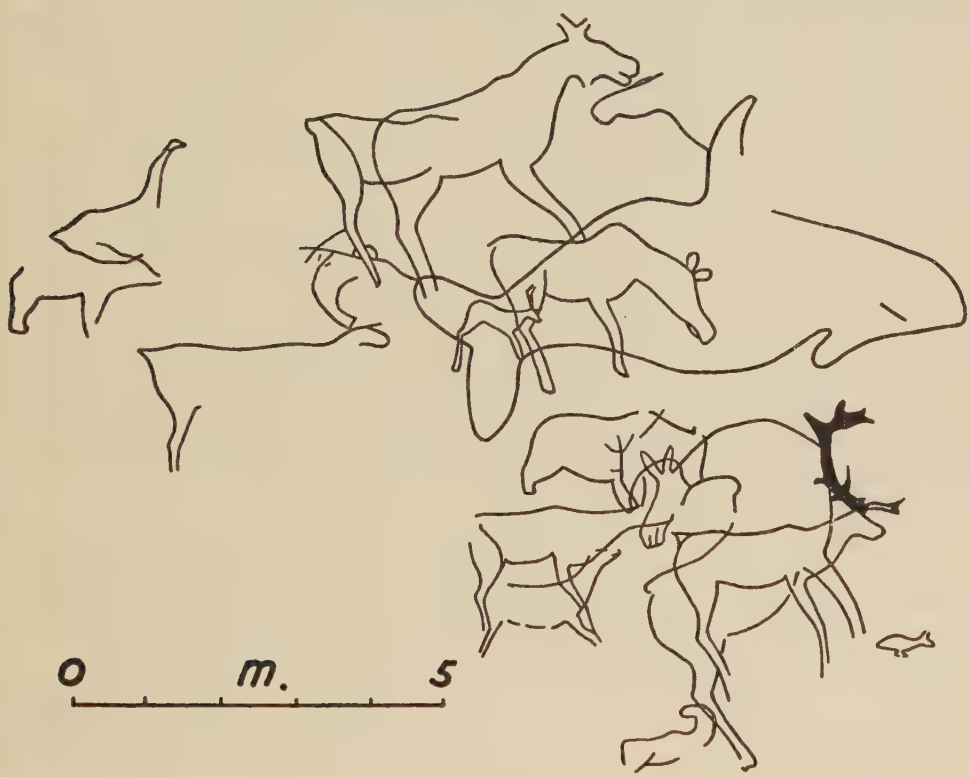


FIG. 1. PART OF THE FRIEZE AT LEIKNES (style A) SHOWING A CHARACTERISTIC PALIMPSEST
after Gjessing

beasts, which is found at Fykanvatn (FIG. 2, B) and Bardal, stresses the fact that the artists were keen to produce an outline of a beast, rather than a picture to be admired.

Although wild animals and men still form the most usual subjects of style B their representation is markedly less naturalistic than in style A. In the east Norwegian sub-group, found in the neighbourhood of Oslo, the naturalistic feeling is certainly stronger than it is at Vingen,

and still more than at such sites as Bogge and Glösa (PLATE I), where the figures are extremely schematic. In the Oslo group the figures still attain a fair size (see the Åskollen elk, nearly 6 feet across, (PLATE II) but at the other sites the figures have shrunk to insignificant dimensions. In style B as a whole the animals are usually shown with four legs, instead of only two, and the lines of the legs are often carried up directly to join the back bone. A remarkable feature of style B is the frequent occurrence of markings within the outlines of the figures. Sometimes, as at Vingen and in one of the Gjeithus groups, the markings take the form of parallel straight lines or linear chevrons, while at Ekeberg (PLATE III) and Skogerveien they often form a rough net-work dividing the body up into unequal fields ; but by far the most interesting markings are those which are generally taken to represent internal organs. These latter are, perhaps, most clearly seen in the pair of elks at Gjeithus (PLATE IV), but they are also found at Skogerveien, and less clearly at Åskollen and Ekeberg. While this feature is most characteristic of the Oslo sub-group it is also found in perhaps degenerate form at Glösa (PLATE VIII, A). Particularly in the Vingen-Bogge-Glösa sub-group the figures are found in fields sometimes of many hundreds, but possibly because of the small size of the figures palimpsests are rare. Yet although we find the figures occurring in large groups there still remains little suggestion of a scene.

In producing the engravings direct incision was possible only where the rock was sufficiently soft and at present it has been recorded only at Hell, a place much frequented by tourists from Trondhjem for reasons quite unconnected with prehistoric archaeology. A second technique, that of grinding into the rock-surface (*schleiftechnik*), is of particular interest because it is only found employed on engravings of style A, thus serving to support the reality of the sub-division made on purely stylistic grounds. The third and commonest technique, that of pecking, by which a line was produced by the junction of a great number of small shallow pits, was occasionally employed on engravings of style A, but exclusively on those of style B, as well as on the later Bronze Age group. Such pecked outlines are often difficult to see, but the technique is well demonstrated by PLATE V, the original of which was taken while the rock surface was still glistening after heavy rain.

The geographical distributions of the various styles differ widely, as reference to our key distribution map will show (FIG. 3). It will be seen that style A is confined to the sea-board of Norway, north of latitude 63, and to a limited portion of central Sweden. Style B, on the other

hand, is found, with the exception of an isolated site in the far north, only on the fringes of the area of distribution of style A and in regions further south. Thus considerations of style, technique and distribution

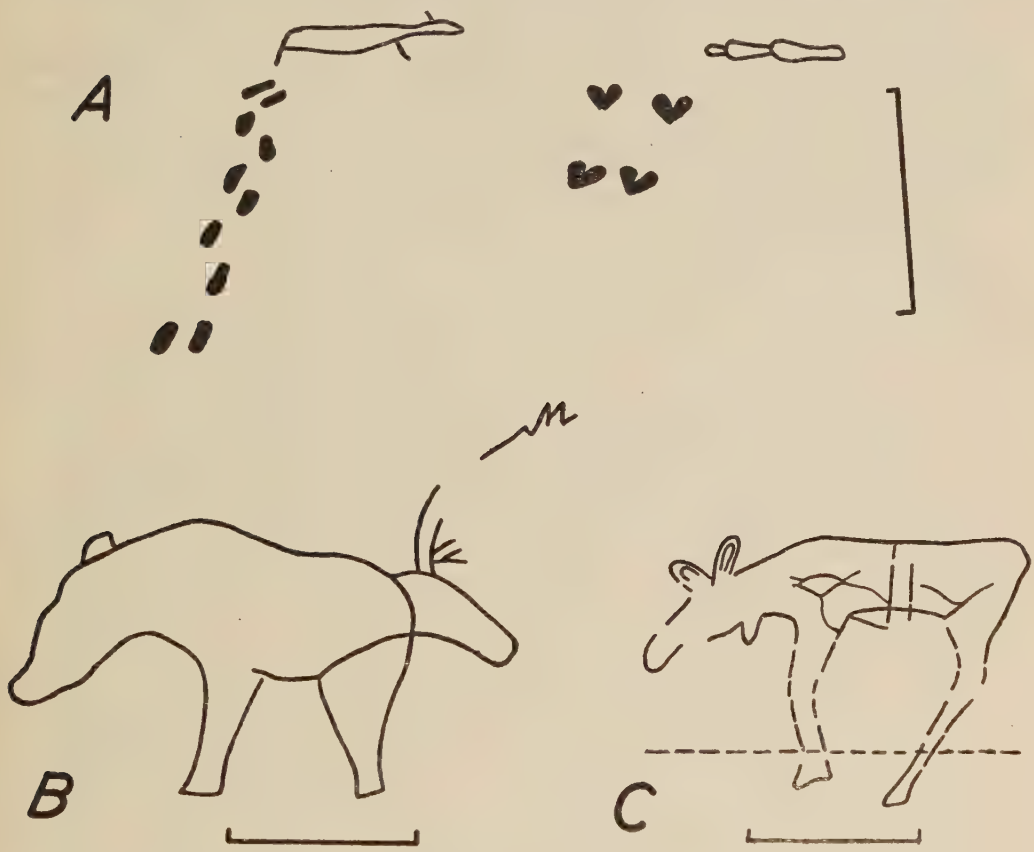


FIG. 2. Scales of one metre

A. THE HUNTING SCENE AT GÄRDE IN CENTRAL SWEDEN. The scene is viewed obliquely as seen from the ground

B. AN ENGRAVING IN STYLE A AT FYKANVATN, illustrating the trick by which a second animal was produced by adding a head to the rear of one already drawn

C. AN ELK (STYLE A) AT LANDVERK IN CENTRAL SWEDEN. Note the band round the middle and the high water level of the lake indicated by a broken line

support the view that in the Arctic art we have to deal with two distinct schools or groups. The interrelations of the two groups can best be dealt with when considering their respective ages.

The content of the engravings, which does not differ significantly

as between groups A and B, is very simple. It includes only animal forms, human figures, and various signs, including foot-prints and geometrical patterns. The animals represented are, with the exception of a possible dog at Forselv, exclusively of wild species ; they include not only elk, reindeer and bear, but also seals, whales, halibut and water-birds. A feature of several of the engravings of elks, which it is difficult to explain, is the presence of a band around the middle, suggesting some kind of harness ; at Landverk (FIG. 2, C) and at Åskollen the band is indicated by a pair of parallel lines, while at Glösa and Gärde it is shown by a single line. If found on engravings of reindeer the band could be explained as indicating some such harness as the Lapps employ ; on elks it remains something of a mystery. The human figures are, as a rule, very schematic, a good example being that at Ekeberg well seen on PLATE III with parallels at Skogerveien and Tennes, all of which indicate males. At Vingen there are numerous schematic human figures, mostly males (some phallic) but including some women. The famous frieze at Forselv includes a human figure on a large scale and in a more or less naturalistic style ; in this case both arms are outstretched and from one of them hangs a line attaching to the collar of what is presumed to be a hunting dog. One should also mention the schematic human figure at Gärde which forms part of what one can only interpret as a scene of hunting-magic (FIG. 2, A). Associated with this figure is an elk and the footprints of man and elk. Footprints form, indeed, a distinct feature of the art ; thus a single elk footprint is visible immediately above the back of the Åskollen elk in PLATE II. Among the geometrical patterns or signs the commonest are lozenges, sometimes enclosed in a rectangle, sometimes disposed in a line as at Hell, and sometimes engraved singly (FIG. 4) ; the purpose of these signs is obscure, but they always occur in association with animal forms. Finally, we may mention some possible boats in the Forselv frieze, which seem to form part of a fishing scene, and some curious sickle-shaped signs which occur in some numbers at Vingen (FIG. 5). It seems exceedingly unlikely that these latter signs really do indicate sickles, nor is their alternative interpretation as throwing-sticks altogether conclusive ; it is quite probable that their real significance is entirely unconnected with the objects whose form they suggest to us. Indeed it may not be fanciful to imagine that they represent degenerate elk-heads. FIGURE 6 indicates two of the more degenerate elk figures from Vingen side by side with three of the ' sickle-shaped ' signs, some of which resemble very closely the heads


0
4
8
12
16
20
32
68
64
60
56
Tennes
Finnhågen
Sletjord
Forselv
Leiknes
Sagelven
Klubba
Fykanvatn
Rödöy
Polar Circle
Solsem
Strand
Hammer
Gjöljavann
Böla
Barda
Skärvangen
Gärde
Glösa
Kall
Landverk
Nämnforsen
Evenhus
Heil
Honnhammer
Bogge
Flatruet
Vinger
Nyland
Sporanesset
Gjeithus
Ekeberg
Ulvenesset
Skogerveien
Fjone
Askollen
Trontveit
Furuodden
Dalbergså
KEY
Rock-engravings, style A
Rock-engravings, style B
Rock-paintings
The chief areas of Bronze Age rock-engravings
0 100 200 300 km.
0 100 200 m.
J.S.D.C. 1936

Fig. 3

and necks of such degenerate figures. Possibly the signs in some way represent elks for magical purposes.

All the evidence that we have so far reviewed, both as regards the grouping of the engravings and their subject matter, suggests unambiguously that the Arctic art is to be explained as a manifestation of hunting magic. Certain of the signs we cannot explain, although even these have their analogues in the cave art of the West, but such an engraving as the Gärde scene with its footprints of the hunter and his victim speaks plainly enough.

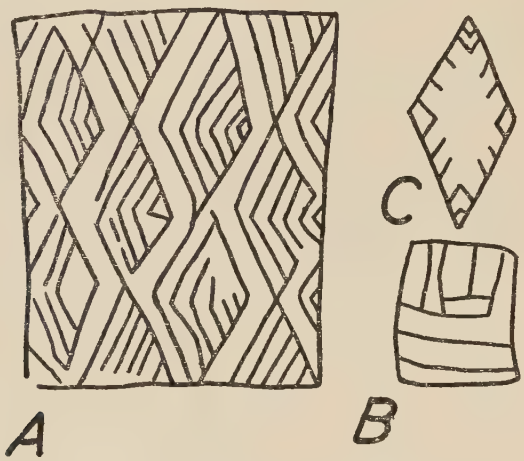


FIG. 4. SIGNS FROM THE FORSELV FRIEZE ($\frac{1}{10}$)
After Gjessing

The feature of the art most attractive to the visiting archaeologist is the situation of the engravings in the open air, generally in the most beautiful natural surroundings, circumstances which more than compensate for the lack of the mystery attaching to the cave art of the Dordogne or the Pyrenees. The engravings were generally made on rock-surfaces, planed smooth by the movement of gigantic ice-sheets ; sometimes the rock-surface lies flat on the ground, but frequently it forms a gentle slope occasionally even approaching a vertical face. Unlike the engravings of the Bronze Age group of southern Scandinavia, which are normally found on the margins of cultivable soil, the Arctic engravings are usually found in wild country, but the most interesting feature of their situation is their intimate association with water.

A glance at the distribution-map will show that the bulk of the engravings adhere closely to the coast-line. Indeed some of the most interesting groups, notably those in the neighbourhood of Vingen, are to be found on rock-faces shelving directly into the waters of fjords and can be visited only by boat. In many cases, however, land-movement has left them stranded well above modern sea-level, and where, as in the Oslo group, these are situated in a well developed area, it is possible to visit them quite easily by rail and foot. On the other hand the central

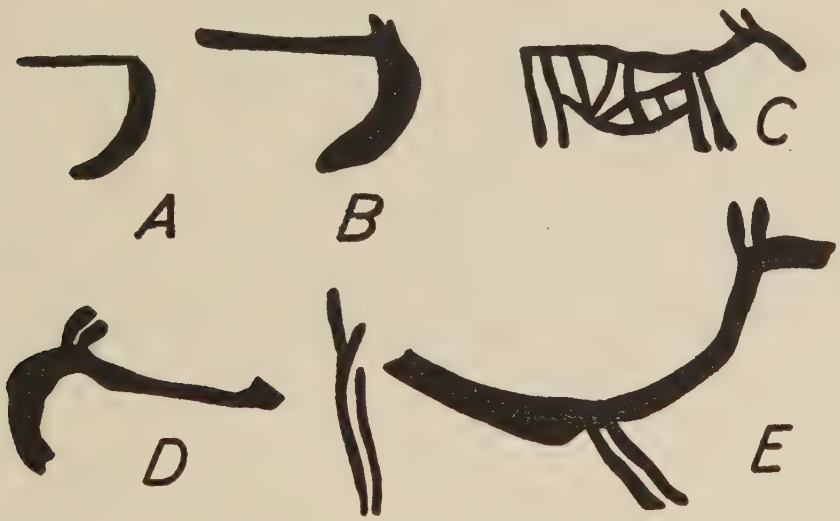


FIG. 5. 'SICKLE-SHAPED' SIGNS AND CONVENTIONALIZED CERVIDS FROM VINGEN, NORWAY ($\frac{1}{10}$). *After* BØE

Swedish group is intimately associated with the inland waterways of the area—how intimate is the association one can only appreciate by visiting some of the sites. Travelling north by the Stockholm-Storlien rail-route it is relatively easy to visit the Glösa and Landverk engravings by breaking the journey at Nälden and at Ånn respectively, while by taking the side-line from Bräcke it would not be difficult to visit Nämforsen before continuing the journey north. The Nämforsen engravings, which occur in several groups, are found immediately on the edge of the Ångerman river and on a rocky island situated in the midst of foaming falls and rapids ; they are close to the railway station, but it needs a skilled boatman to reach them all. The situation of the Glösa

group, which can be reached by a short car run from Nälden, is illustrated by PLATE VI. The engravings can be seen in the right foreground by the edge of a small waterfall tumbling down to the lake in the background. The closer view of the group given by PLATE I shows (the photograph was taken at the end of July) that many of the figures must actually be submerged when the fall is carrying more than a trickle of water. The classic example of association with a waterfall is of course the much illustrated engraving at Böla in the Trondhjem region, but Glösa is interesting for the indication it gives of the season during which the engravings were made. At Landverk we have yet another kind of association with water, for here the engravings are found on a rock-face shelving steeply into the waters of an inland lake (the Ånnsjö) —one can indeed only study the figures from a boat unless one is prepared to visit the site when the lake is frozen over. Particular care must be taken, if one wishes to see the whole of the elk figures, not to make one's visit at the time of the spring melting, for at such a season their feet are below the level of the swollen lake. Equally striking in this respect is the situation of the Gjeithus engravings, which are found on glacially smoothed rock-faces sloping gently into the waters of the Dramselva (PLATE VII) ; in times of spate the engravings are covered by the swirling waters of the river.

The distribution of the engravings and their individual locations serve to confirm the impression that they were the work of tribes subsisting by hunting and fishing : conversely, just as there is no indication of agriculture or of the domestication of animals in their content, so also is there nothing in their situation to suggest that their makers had any predilection for a fertile countryside. The evidence from such sites as Glösa, Landverk and Gjeithus makes it almost certain that the engravings were done during the summer or autumn months, while finds of palimpsests like that at Leiknes show that the favourite sites were frequently revisited. This suggestion of seasonal migration fits in well with the other evidence for the economic status of the people responsible for the art. The association with water may partly be explained by the fact that in such a rocky and heavily forested region as central Sweden and large parts of Norway natural waterways offered almost the only means of transport to early man during the warm months of the year, but one can hardly account for the facts by this consideration alone. One is compelled to the conclusion that some magico-religious motive was at work ; for some reason that is obscure to us these hunting folk ground or pecked their engravings as close to water as they could,

PLATE I

GENERAL VIEW OF THE GREATER PART OF THE FIELD OF PECKED ENGRAVINGS (ARCTIC, STYLE B) AT GLÖSA IN THE SWEDISH PROVINCE OF JÄMTLAND. WATERFALL IN IMMEDIATE FOREGROUND. Scale of one foot

ph. J. G. D. Clark

facing p. 64

PLATE II

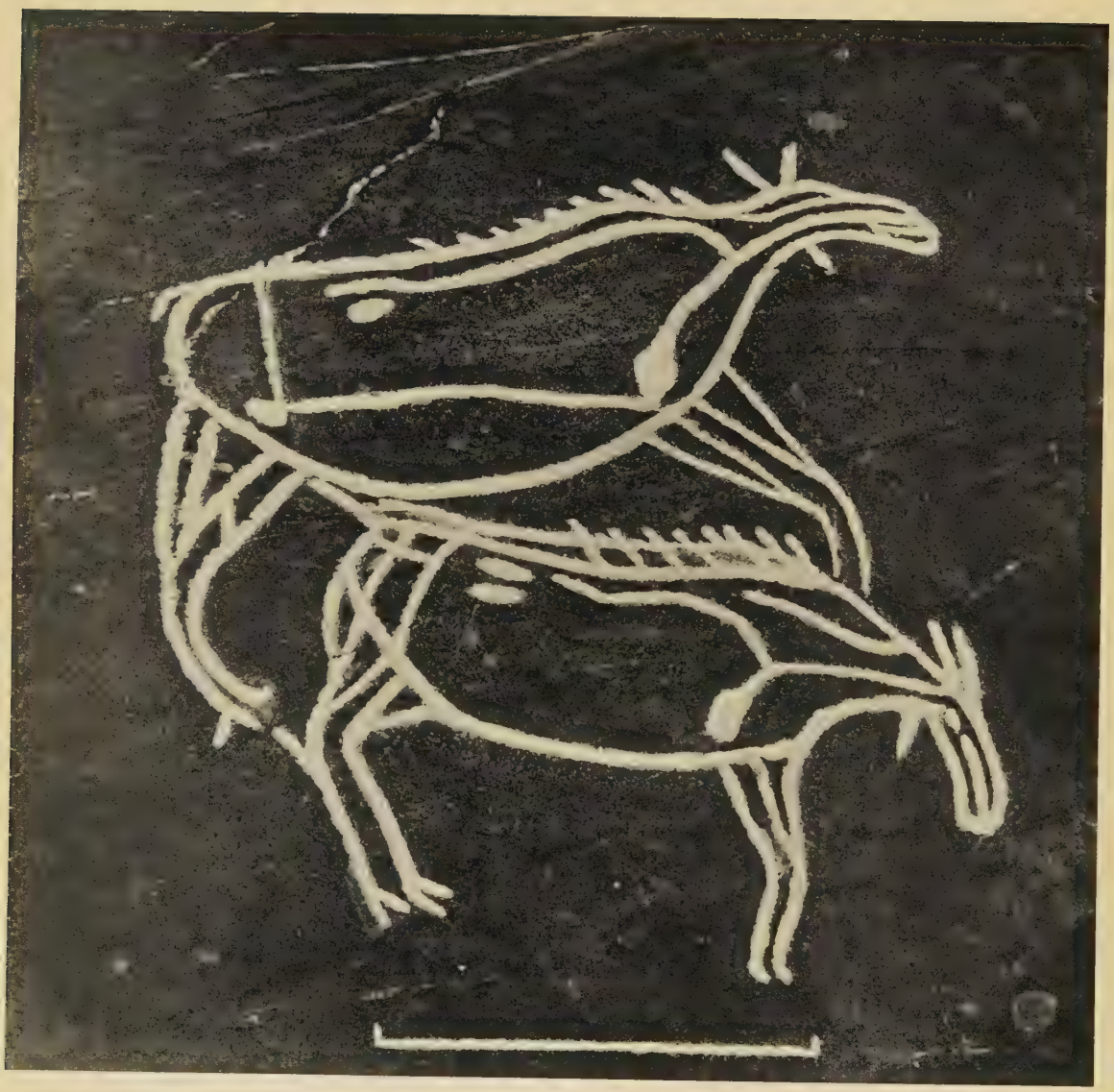
GROUP OF PECKED ENGRAVINGS (ARCTIC, STYLE B) CONSISTING OF AN ELK NEARLY 6 FEET ACROSS, THE FOOTPRINT OF AN ELK, AND A BIRD, AT ASKOLLEN SOME 56 METRES ABOVE DRAMMEN FJORD, S.E. NORWAY. CHALK HAS BEEN RUBBED INTO THE PECKED AREAS. Scale of one foot

ph. J. G. D. Clark

PLATE III

THE GREATER PART OF THE FIELD OF PECKED ENGRAVINGS (ARCTIC, STYLE B) ON GLACIALLY SMOOTHED ROCK AT EKEBERG, 54 METRES ABOVE OSLO FJORD. THE PECKED LINES HAVE BEEN CHALKED AT DUSK BY TORCH-LIGHT. Scale of one foot

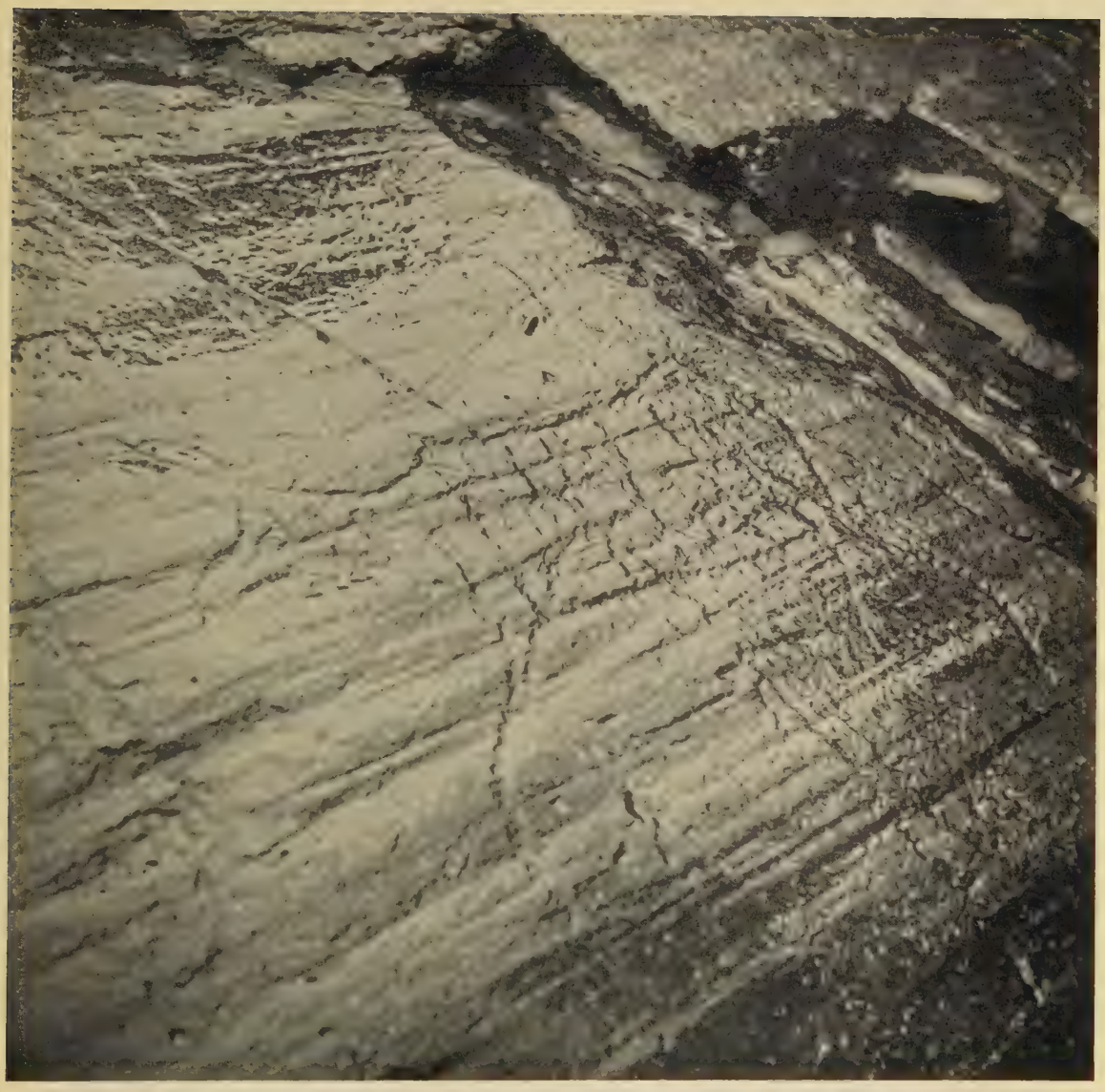
ph. J. G. D. Clark



PAIR OF ELKS IN PECKED TECHNIQUE (ARCTIC, STYLE B) AT GJEITHUS, S.E. NORWAY. NOTE THE PECULIAR INTERNAL ARRANGEMENTS INDICATED. Scale of one foot

ph. J. G. D. Clark

PLATE V



ROCK-ENGRAVING (ARCTIC, STYLE B) IN PECKED TECHNIQUE AT EKEBERG, NEAR OSLO

The engraving is barely visible in sun-light, but can easily be seen when the rock is glistening with rain, as when this photograph was taken. Alternatively the outline is visible at night by the use of artificial light

ph. J. G. D. Clark

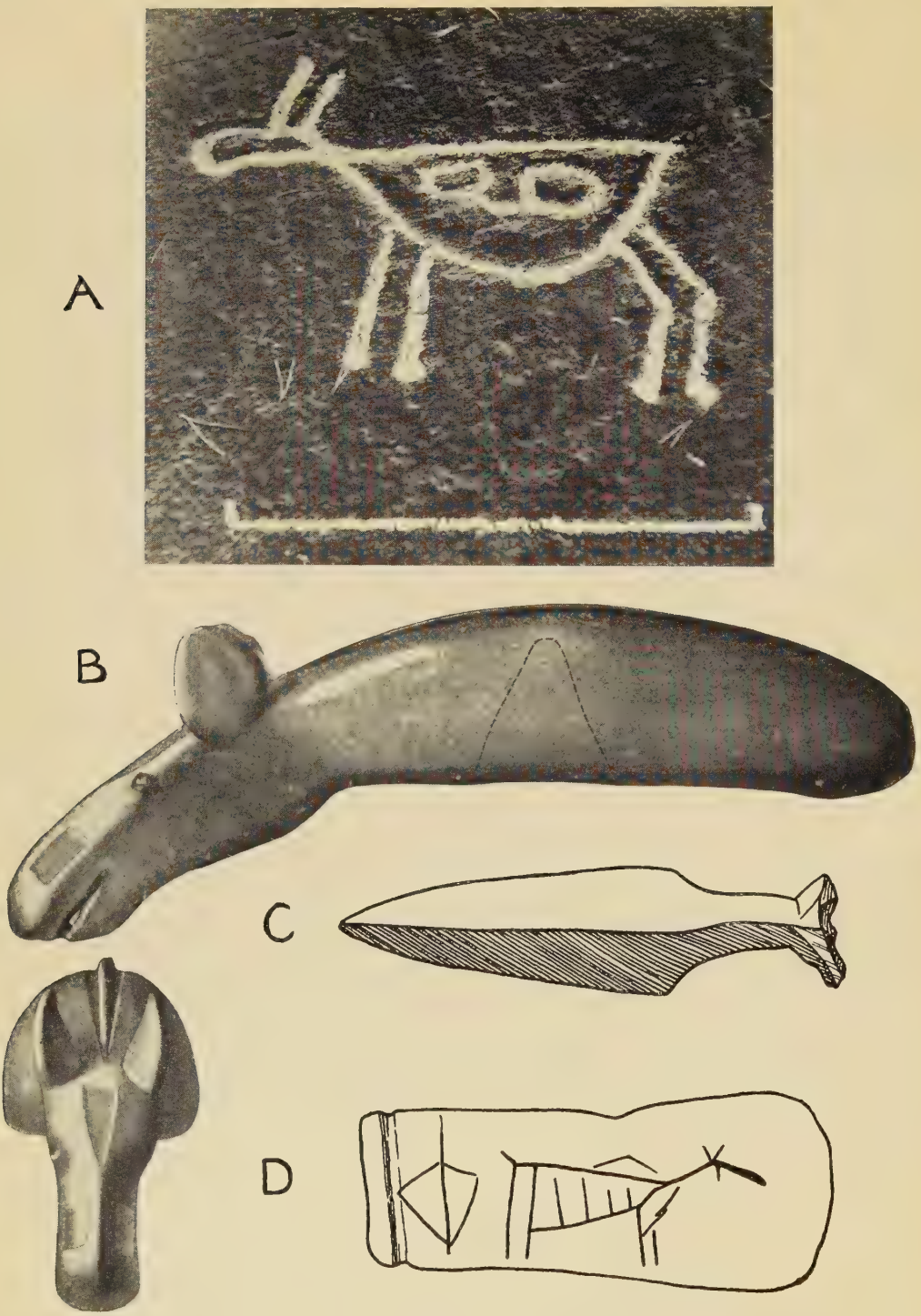
GENERAL VIEW LOOKING DOWN THE WATERFALL AT GLÖSA TOWARDS THE LAKE. SOME OF THE ENGRAVINGS ARE JUST VISIBLE ON THE SMOOTH ROCK (RIGHT FOREGROUND)

During the spring melting most of the engravings are covered by the rush of water

ph. Mrs Clark

GENERAL VIEW SHOWING THE SITUATION OF THE PAIR OF ELKS AT GJEITHUS ON A GLACIALLY SMOOTHED ROCK SURFACE SHELVING OBLIQUELY INTO THE RIVER DRAMSELVA WHICH AT SOME SEASONS COVERS THE ENGRAVINGS COMPLETELY

ph. J. G. D. Clark



A. A SCHEMATIC CERVID AT GLÖSA, SHOWING DEGENERATE REPRESENTATION OF INTERNAL ORGANS. Scale of one foot
ph. J. G. D. Clark

B. STONE AXE WITH ELK-HEAD TERMINATION FROM ÅLUNDA, SWEDEN. Scale $\frac{2}{3}$

C. SLATE KNIFE WITH ELK-HEAD TERMINATION FROM NORTHERN SWEDEN. Scale $\frac{1}{2}$

D. SLATE PLAQUE WITH SCHEMATIC ENGRAVING OF AN ELK FROM GÄSTRIKLAND. (*After* Rydh). Scale $\frac{2}{3}$

whether by river, fjord, waterfall or lake-side. Their hunting luck seems to have been bound up with something inherent in the water—more than that one cannot say.

Direct evidence for dating the engravings is excessively rare. In western Europe the upper palaeolithic art has been dated by finding cultural deposits heaped up against the engravings and sculptures on the cave walls, as well as by recovering small loose works of art from the deposits themselves ; moreover the sequence of styles has been defined and verified by the study of numerous palimpsests or superpositions. In Scandinavia, where the engravings are in the open, such direct

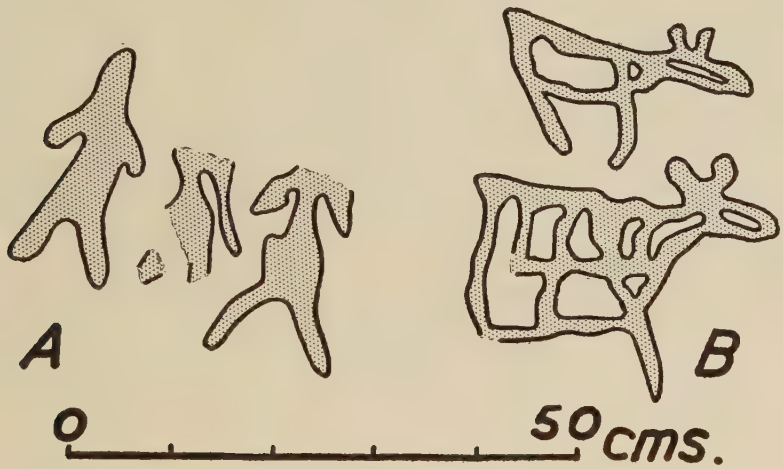


FIG. 6. ROCK-PAINTINGS FROM RÖNNINGEN (A) AND FJONE (B), NORWAY
showing human figures and elks, the most characteristic subjects
After Engelstad

methods of dating are obviously impossible, nor do the palimpsests help to the same extent in determining the sequence of styles. Certain lines of indirect evidence do, however, afford some indication of the antiquity of the art, and these must now be examined.

The coastal situation of many of the Norwegian engravings makes it possible to date them geologically in terms of post-glacial land-movement. It is well known that after an initial submergence, due probably to a lag in isostatic recovery, Norway underwent an almost continuous elevation from the sea as the weight of the dwindling ice-sheet diminished, and it is therefore obvious that archaeological sites within the areas uncovered by the sea can be related to different stages

in the geological process. But, since the successive strand-lines marking the stages of emergence have been closely correlated with archaeology by the excavation of dwelling-places at different levels, it will be clear that engravings dated in terms of land-emergence can also be dated in terms of archaeology. There are of course certain limitations to this line of evidence, which must be stated before considering the results. First of all it will be appreciated that the relation of the engravings to sea-level can tell us *only their maximum age*; we can say for certain that engravings were not made when the sea stood at a level which would cover them, but it is not possible to say at what height above contemporary sea-level the engravings were made, or in other words how young they may be. Secondly, the results which W. C. Brøgger obtained in the Oslo region in the correlation of early dwelling-places and ancient strand-lines cannot be applied to the very extensive sea-board of Norway as a whole. In certain parts near Bergen, for example, other correlations have been made, but further north even the maximum dating of archaeological sites by this means must remain rather vague until more work has been done. Yet certain conclusions have emerged by following up this line of enquiry:

(a) On the western coast of Norway style A engravings are normally found at higher elevations than style B.[1] This suggests that rock-surfaces available during the dominance of style B were still under water while the style A engravings were being made at higher levels.

(b) The more naturalistic sub-group of style B in the Oslo region ranges between 53 and 70 m. above modern sea-level.[2] According to W. C. Brøgger the Nøstvet culture flourished while the sea fell from 70 to 45 m. It is therefore certain that the engravings cannot be older than the Nøstvet culture, which was contemporary with the earlier stages of the Ertebølle or kitchen-midden culture of Denmark.

(c) On the basis of the archaeological-geological correlations made by Kaldhol in the Nordfjord region of west Norway the Vingen engravings belonging to the more schematic sub-group of style B cannot be older than the latest kitchen-middens and the earliest dolmens of Denmark.

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[1] *e.g.* Style A: Bardal, 42m., Böla, 66m., Fykanvatn, 95m., Klubba, 55m., and Sagelven, 44m. Style B: Bogge, 22m., Evenhus, 32m., and Vingen 8¼m.

[2] Thus Åskollen at 56m., Ekeberg at 54m., Gjeithus at 53m., and Skogerveien at 70m. above modern sea-level.

The geological evidence has helped materially in determining the sequence of styles ; it is clear that style A preceded style B, and that within style B the Oslo sub-group may well be older than the Glösa-Vingen sub-group. This development from naturalistic to schematic representation accords with the impression one had gained from observing the engravings themselves, but without some such confirmation it is highly dangerous to determine the direction of the development of an art-style or a material culture-type. As to the age of the engravings maximum limits have been set to both sub-groups of style B, which make a high antiquity even for style A extremely unlikely. To this one might add that the site of the style A engraving at Landverk in central Sweden was not uncovered by the Scandinavian ice-sheet until late in the Fini-glacial retreat stage.

Archaeological evidence even of an indirect kind is very scanty. There is of course the well-known superposition at Bardal, where elks in the naturalistic style A are overlaid by ships and other motives in the characteristic Bronze Age style, but apart from some difference in the weathering of the two sets of engravings there is no indication of the length of time separating them. There are, however, a few finds of small objects with animal engravings which help to date the rock-engravings. These include a bone pendant from the Stavanger region, engraved with a crude but more or less naturalistic elk or stag, which was found in association with a coarsely barbed bone point of a type which persisted in this region well into the Bronze Age. A second find to be noted is the grooved slate object illustrated by PLATE VIII, D, near which was found a slate point of the Arctic dwelling-place culture; it is important to observe in this engaving that both the back legs of the animal are carried up to meet the backbone, a feature which is absolutely characteristic of the Glösa-Vingen sub-group of style B.

No mention has yet been made of the paintings, which are found in much the same areas as the engravings of style B. The paintings are carried out in a red pigment and nearly always represent schematic human figures, often accompanied by elks or cervids of some kind (FIG. 6). The elk figures often show the internal markings characteristic of style B. The paintings are usually protected by over-hanging rocks, but at Solsem they occurred in a cave. It is of great interest that the schematic human figures which form the subject of the paintings were revealed only by the removal of a deposit which yielded a bone figurine of a bird of east Baltic affinities and a slate arrowhead of the Arctic dwelling-place culture.

By whom were the engravings and paintings made? Obviously by hunting and fishing tribes who occupied those regions of Scandinavia in which the art is found. The only possible candidates are the folk of the Arctic dwelling-places and the newly discovered people who made the Komsa (Finnmarkian) and Fosna stone industries; but the latter have no real claim for consideration as the authors of the art we have described. Quite apart from the fact that there is every reason for thinking that the Komsa and Fosna cultures reached Scandinavia at a period long anterior to the appearance of the art, there is the strongest positive evidence for connecting the Arctic art with the Arctic dwelling-place culture. It is significant that not only do both the small plaques with animal figures that we cited in connexion with the rock-engravings attach to the dwelling-place culture, but a slate arrowhead of a type absolutely characteristic of this culture was associated with the paintings in the Solsem cave. Moreover an aptitude for the naturalistic representation of animals is one of the primary features of the Arctic dwelling-place culture from the Scandinavian peninsula far away into Siberia. This aptitude was expressed in animal-headed stone maces and axe-heads (a magnificent example of which is illustrated by PLATE VIII, B), in slate knives with animal-head terminations (PLATE VIII, C), in wood carving (*e.g.* the elk-headed wooden ladle from Laukaa, Finland), in such bone-work as the Gullrum comb, in plastic clay modelling (*e.g.* the Åloppe elks), and even in such famous bronzes as the Seïma dagger from Russia. The animals, which form the subject of the art, were elk and bear, the big-game of the region, and there seems little doubt that the sculptures, like the engravings and paintings themselves, were connected with hunting magic. There seems to be no reasonable doubt that the rock art of which we have written was the work of the Arctic dwelling-place folk, who flourished during the period of the Megaliths in southern Sweden and Denmark.

In conclusion a word must be said about the relations of the Arctic art and the Bronze Age rock art of Scandinavia. As our map shows the Bronze Age group stretches south of the area of the Arctic art, but there is a strong geographical overlap between the two represented largely by stray finds in southwest Norway and central Sweden, which are not shown on the map. The economic basis of the Bronze Age engravings contrasts strongly with that of the Arctic art; the engravings are often placed close to cultivable soil and they feature plough scenes and waggons drawn by domestic animals, obviously reflecting an economy in which food-production played some part.

Clearly there are many elements in the art which came in with the new economy, but it seems difficult to believe that there is no connexion between these two Scandinavian art groups. There is in the rock-engravings of Bohuslän a feeling for animal drawing that may indicate some continuity with the Arctic art, but it must be confessed that this is slight : the economic backgrounds of the two art-groups were too opposed for any continuity of tradition to be easily discerned.

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Addendum

Shortly after this article appears both volumes of Hallström's *Monumental Art of Northern Europe from the Stone Age* will be published in Stockholm (the second volume is announced for April). Here the reader will find a detailed account and, in particular, a series of magnificent illustrations of the art published by its pioneer discoverer. My wife and I are much indebted to Hallström for helping us with our visit to the Central Swedish group of engravings.

The Mother-Goddess of Gandhara

by Major D. H. Gordon, d.s.o.

IT is forty years since Alfred Foucher carried out his archaeological mission in Gandhara* and, while it cannot with justice be said that the area has been archaeologically neglected ever since, there are points connected with material culture, art and religion that cry out for attention. When Foucher conducted his investigations he based these on the itinerary of Hiuan-tsang and he was searching for Buddhist relics. Unfortunately he saw stupas and monasteries in every mound, and in fact stated that ' chaitya ' (sanctuary) and ' dheri ' (mound) were synonymous, this largely because Hiuan-tsang had said that there were about a thousand monasteries between Peshawar and the Indus.

Since the time of Foucher there has been but little excavation in western Gandhara. The work of Marshall and Vogel at Charsadda in 1903 and of Spooner at Sahri Bahlol and Shah-ji-ki-Dheri was undertaken as a check on Foucher, and to determine if possible the sites of such famous erections as the Kanishka Vihara and the Stupa of the Eye Gift, and in fact it is only in the most recent times that anyone has seen beyond the length of a Graeco-Buddhist nose. Recent excavations in India and countries on her borders have produced new problems and a fresh set of interest values ; and though it is not to be denied that there are problems outstanding as regards the true source of western influence apparent in the Indo-Afghan art of Gandhara, now, consequent on the discoveries in the Indus Valley, it is to the possibly older objects that attention is being turned.

There has always been in India a great deal of literary antiquarianism. A discovery to provoke interest must be capable of being traced to a reference in the Puranas, the Mahabarata, or the Jatakas, or failing that to some recognizable element in Hindu, Buddhist or Jain iconography. Where such a link is missing it is either created with a naive disregard for scientific method, or else the objects found are passed

* He published *L'Art gréco-bouddhique du Gandhâra*, 2 v. 1905–8.

over as being unworthy of attention. The point now arises that there are objects present in ancient sites in Gandhara which do not readily fall into any recognized category, and it is of the greatest importance that it should be determined whether these objects are datable to a period previous to the invasion of Alexander, and if they are, do they date back beyond a period showing verifiable contacts between India and the West, say the time of Cyrus ?

The crux of the problem would appear to be the identity of the local Mother-Goddess and the earliest date of her importation into Gandhara. At first sight this would seem to be an almost insoluble problem. On the west, beyond the mountains of Afghanistan, there lies a region where the worship of the Mother-Goddess may well have an unbroken continuity dating back to palaeolithic times. On the south there is the Indus Valley, where this worship may be considered as being established for at least a thousand years before the time of Alexander.

The data concerning the Mother-Goddess as worshipped in Gandhara is of a very curious character. At one and the same time there are being observed the rites of the Buddhist creed, and the worship of a mother-goddess and her consort. Furthermore these are not kept separate as one might suppose, but are actually present together at the same place of worship. To show that this was the case one must link the mother-goddess in terra-cotta with the figures of the so-called Hariti, and this can, I feel, be done without in any way straining the evidence.

I have previously called attention[1] to the extremely interesting types of terra-cotta figures which can be found all over the North-West Frontier. Such figures were found in the Charsadda excavations of 1903, and also at Shah-ji-ki-Dheri, but they did not rouse great interest at the time, being generally regarded as toys, for in any case there were not present at that time other factors now in existence to stimulate an interest in such objects. I have particularly concentrated on an archaic type of mother-goddess figure, characterized by being peg-shaped, with pinched-out nose and applied incised eyes, naked but for ornaments, a girdle, necklace, bracelets, anklets and the channavira.[2] Such figures

[1] ' Some Terra-cottas from Sari Dheri, North-West Frontier Province '. *J.R.A.I.*, LXII, 1932. ' Notes on Early Frontier Terra-cottas '. *Man*, 1934, no. 70. ' The problem of Early Indian Terra-cottas '. *Man*, 1935, no. 129.

[2] A jewelled chain crossed diagonally across the front of the body from shoulder to opposite hip.

are present in relatively large quantities at the site of Sari Dheri near Charsadda, a few of identical and of similar style have been found at Taxila, and there are indications to show that investigation would produce them from a number of other sites[3] (PLATE II).

The site of Sari Dheri would appear to be a shrine. Terra-cotta objects in great variety are found there, but mother-goddess figures and those of animals, particularly oxen and horses, are also there in large numbers. Some of the animal figures have the appearance of being toys, but it is probable that all are of a votive character. One thing, however, seems clearly indicated, this was the shrine of a mother-goddess with an attendant god, the former receiving the lion's share of the worship and the ' ex votos '. The shrine had grouped round it, judging by the pottery and the clay and stone weights found in the vicinity, the homes of the priests, or possible priestesses, and the temple servants.

Who were this mother-goddess and attendant god ? It seems to admit of small doubt that they were Hariti and Kuvera, whatever that may mean, and that is very little, except that they were the prime deities of the then most progressive part of India for close on five hundred years. Information on the subject of these deities is very scanty, but Buddhist Gandhara is full of their representations. Hariti, the true Hariti, mother of demons, wife of Prajnaka, converted by the Buddha, is shown with her children grouped round her, but who is the so-called ' Hariti ' shown with a cornucopia and mural crown ? This is a much more important personage, one with whom it will be shown the philosophy of Buddhism had to share its sanctuaries and its worship, no lesser a one than the great Mother-goddess herself, patron goddess of Pushkalavati as Athene was of Athens. The shadowy Kuvera,[4] giver of wealth, lord of Yakshas, is the true lineal descendant of all those chthonic gods of wealth and of the underworld, who are to be associated with fertility cornucopia goddesses. As is so often the case in Hellenistic times, the attributes of many fertility cults are mingled, and there are traces of the iconography of Ceres, Cybele, and Astarte, also Pluto, Dionysos, and Attis. Though it is possible to challenge this conclusion, I suggest that the real deities immediately behind the inadequate

[3] I have specimens from various sites in the Charsadda and Mardan sub-divisions, and also one reported to come from a mound about a mile from the Buddhist site at Hadda, Afghanistan.

[4] The words Cabiri, Kabeiros, Kubera indicate most probably the origin of this god, and his link with the fertility mystery.

PLATE I

HARITI AND KUVERA. STUPA-PLINTH, TAKHT-I-BHAI. (*See* pp. 72 and 76)

facing p. 72

PLATE II

ARCHAIC FIGURINES. (*See* p. 71 ff)

From Sari Dheri (top, L and R); from Sheikh Yusuf (centre); from Hadda, Afghanistan (bottom, R); from vicinity of Taxila (L)

Hariti and Kuvera are Anaitis and Mithra and that they alone can fulfil the conditions of style and period.

There is, however, a school of thought that would assign a great local antiquity to the worship of this Mother-Goddess. Until Coomaraswami[5] brought to notice an archaic type of female figurine which had come into his hands, such a style of figure, though previously unearthed at Charsadda and Taxila, had received no attention. Coomaraswami has proposed a second millennium dating for them, and as they have an archaic appearance similar in character to that of very early dated figurines from the Near and Middle East, it is likely that this pushing back of dates, which is always so attractive, will receive a number of supporters.

A point may here be emphasized. The figures of the Mother-Goddess, apart from the stone and stucco figures of datable Buddhist provenance, are of many kinds, the three most numerously represented being, as I now choose to term them, the Archaic style, the Hellenistic, and the Indian style. The Hellenistic and the Indian are datable and cover a period roughly from 180 B.C. to A.D. 300, but what of the Archaic style? Is it roughly contemporary with the Hellenistic, or are we to suppose that this style existed from, let us say, 1500 B.C. to A.D. 300, and that the archaic eye-forms[6] were carried on over such a period to appear in crude copies of the Hellenistic style, and in moulded Indian types of the 2nd or 3rd century A.D. as they do? The coins also of Sari Dheri west mound, the prime source of archaic figurines, do not indicate a high dating; Kushan coins appear from the centre of the section and those of Azes from quite low down. The total absence of Indo-Greek coins of the rulers of Pushkalavati may call for a lowering of the dating of the Hellenistic heads, but there is nothing corroborative of high antiquity.[7]

In order to establish a second millennium dating for any of the material it will be necessary to prove something more than the priority of the archaic figures. An horizon lower by eight or ten feet, at the rate, unknown, of deposit of consecutive mud-wall reconstruction, may not indicate even a hundred years, and it will take more confirmatory evidence than mere priority to show that Sari Dheri was a shrine of the

[5] 'Archaic Indian Terra-cottas'. *IPEK*, 1928.

[6] A male head with a large moustache of a very Scythian or Parthian style has been found, having also the characteristic applied incised eyes. It is a grotesque applied to the neck of a terra-cotta flask, and its dating, late 1st century B.C.

[7] A coin of Archebios of Drangiana has recently been found.

Mother-goddess for close on two thousand years. If by any chance this proves to be the case, the cultural sequence that emerges should be truly astounding, as there are in the mounds quite a number of blue schist Gandharan carvings of the 2nd century A.D.

The evidence, however, to be obtained from Taxila is, I feel, quite convincing and conclusive. Mother-goddess figures in terra-cotta of archaic type have been found at Bhir Mound, Sirkap, and Dharmrajika Stupa. One from each is of true Sari Dheri type, the others are sufficiently similar to be classed as very closely associated variants. Terra-cotta seated figures of ' Kuvera ' are present from both Sirkap and the Bhir Mound, and a male and female pair from a mould found in large quantities in the Bhir Mound are undoubtedly votives to the Mother-Goddess and her consort.

FIGURE 1 shows a most interesting and important statuette from Sirkap. It lay at 8 ft. 10 ins. below surface, that is to say in the margin between the 3rd and 4th strata. It is, therefore, unless it is misplaced by preservation as an object of antiquity or any other reason, datable to the Scytho-Parthian period. The important features are that it is naked but for the usual ornaments and the channavira, and has two long plaits down the back, and that the attitude is stiff, frontal, and archaic and closely conforms in ideology and iconography to the archaic terra-cottas.[8]

Sirkap, like Sari Dheri, can show all three mother-goddess types—the archaic, Hellenistic and Indian. The first have a very Syro-Palestinian appearance and show that characteristic stressing of the pudenda which occurs in so many votive figurines. The second are of that Greek type found at Akra and Sari Dheri, some with wreaths, some with pigtails, some with a rosetted head-dress which is probably the same as that shown in the archaic figures, modified to harmonize with the western art-form. The last, the Indian, are oval flat-backed moulded figures of the Akra type, and moulded figures of that rather ornate and jaunty style that one associates with the tradition of Mathura.

The most interesting items, however, are the model shrines found at Sirkap. From the accompanying illustration (FIG. 2) it will be seen that the shrine consists of a walled enclosure with lamps at the four corners, and birds on three walls and the shrine itself in the centre of the fourth ; steps lead up to the shrine outside which stands a figure

[8] Plate XIX, fig. 2, A.S.I.R., 1928–29, shows a figure from the same site and of the same dating with similar archaic features in only a slightly less degree.

of the Mother-Goddess. In the enclosure are small pillar-like objects, and a fragment of a similar enclosure shows two snakes and a pillar. I have not the least hesitation in saying that the birds are doves, and that

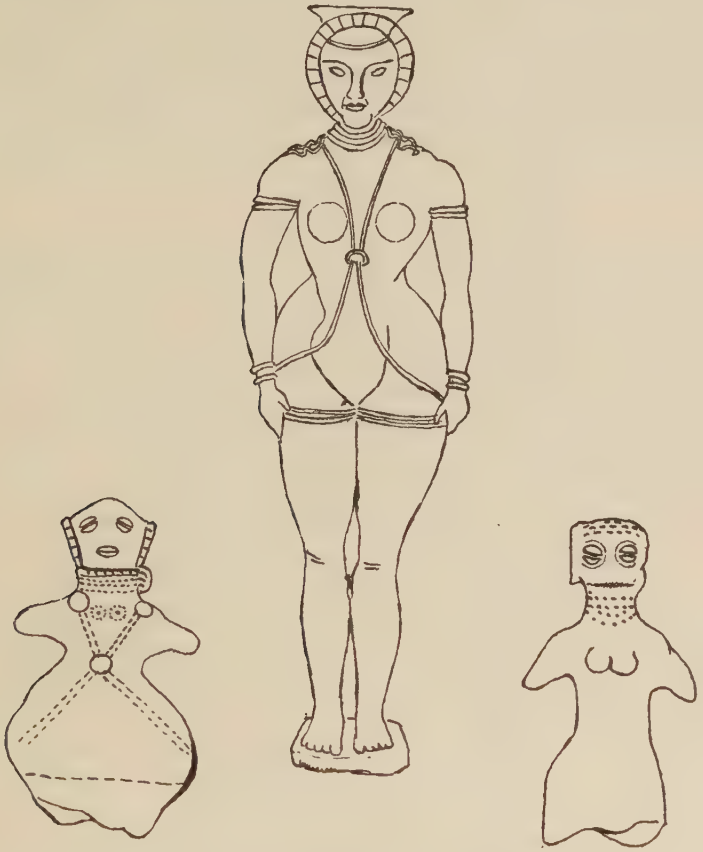

FIG. 1
Left: TERRA-COTTA ARCHAIC FIGURE, SIRKAP
Centre: BLUE SCHIST FIGURE, SIRKAP
Right: TERRA-COTTA ARCHAIC FIGURE, BHIR MOUND
from originals in the Taxila Museum

they, together with snakes, pillars, and lamps, constitute the whole of the adjuncts of the worship of the Great Mother-Goddess.

Moreover these shrines, called there offering-tanks, are shown in plate XIII, A.S.I. annual report 1924–5, in situ beside a Buddhist or Jain

stupa at Sirkap where they had been dedicated. Why do figures of the Cornucopia goddess and her consort occupy the central place on the plinth of Buddhist stupas as they do, a most notable case being at Takht-i-Bhai ? (PLATE I).[9] Why should Buddhist shrines have votive figures of the mother-goddess and her consort, of bulls, of model cornucopia, of mother-goddess shrines complete with doves, lamps and pillars ? It is I feel certain because the worship of the Great Mother brought by Hellenized Parthians became the true religion of Gandhara as opposed to the Buddhist philosophy, which could have had but small attraction for the uneducated, and possibly less for the Parthian invaders.

It cannot be denied that there is a case for the presence of the worship of the Mother-Goddess in these regions before the Parthian supremacy. This worship, however, comes from the Near and Middle East and so does the practice of depositing vast numbers of figurines at shrines. I have turned to Van Buren's ' Clay figurines of Babylonia and Assyria ' as a compendium of knowledge on the subject. Searching this book, I was struck by the way that objects of no known provenance, and few if any parallels, are dated almost uniformly to B.C. 2000. I feel that but for its Aramaic inscription, fig. 199, showing a man struggling with a lion, would have been dated much earlier.

The relevant figures are:— Fig. 49, showing a nude woman with breasts cupped in her hands (300 B.C.). Taxila Museum can show an almost identical figure except that one arm is across the waist and the other hanging down ; figs. 145–7, reclining figures wearing a Scythian cap identical with those worn by the ' Kuvera ' figures ; fig. 299, a shrine with steps and serpents, in which the latter are very similar in style to those in the shrine from Sirkap. The provenance of this shrine is unknown, and though it has no parallels it is dated to 2000 B.C.

There are therefore no parallels to be found there of proven antiquity, and but for the fact that figures have been found at Khafaje with applied incised eyes, which so far had seemed to be unique in northwest India, one could say that nothing from the Middle East could be used to support an early dating for the Indian terra-cottas. The sites themselves, as may be seen from the appended table, show a

[9] These are almost certainly the same figures as are present in the coins of Azes and classed as ' enthroned Demeter and Hermes '. The coins also of Philoxenos showing Demeter and a bull, and a city goddess (Cybele-Hariti) and a bull may be instanced as showing a connexion with the bull cult.

striking uniformity in terra-cotta objects found, this being borne out by their style as well as their subject.

One of the points of great importance relative to this inquiry is the dating of the Bhir Mound. The upper levels cannot well date later than 150 B.C., but there is little or no evidence to show that they do not date from the first half of the 2nd century B.C., as I believe they do. The archaic figure with applied incised eyes found at the Bhir Mound was 4 ft. 6 ins. below surface. There is a similar figure from Sirkap, and these mother-goddess figures of crude style are found in the model

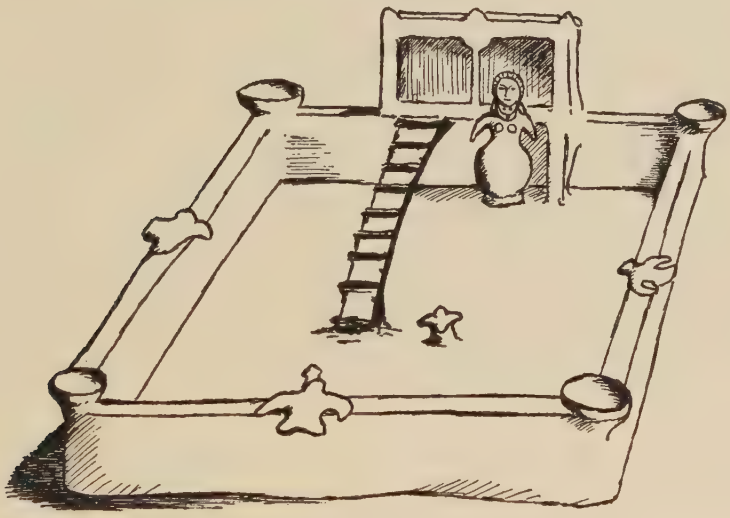

FIG. 2. MODEL SHRINE, SIRKAP
from the original in the Taxila Museum

shrines at 4 ft. 7 ins. and 6 ft. 7 ins. below surface at that site, indicating a dating for these figures starting from *c.* 200 B.C. as an extreme upper limit and continuing to the 1st century A.D. or possibly later. This well agrees with the dating of the archaic figures of the Charsadda sites.

I suggest that this particular cult of the Mother-Goddess came into northwest India at the time of Antiochos the Great of Syria about 210–200 B.C. It is unlikely that the cult was entirely foreign to the inhabitants, but it took on at that time a Syro-Persian complexion, which is observable in the votive terra-cottas and subsequently in the Hellenized mother-goddess with her cornucopia and mural crown. This

form of worship was the dominant cult supported by all except the few who had the inclination to subscribe to the pure Buddhist tenets, and it is obvious from the position of the votive shrines and the importance of ' Hariti ' that the Buddhist priesthood was wise enough to pander to the popular taste.

The one thing now lacking is excavation in Charsadda conducted in the light of modern knowledge. It is, however, possible that such research may be undertaken in the cold weather of 1936–7 by Mdlle Corbiau of Brussels, who has, despite great difficulties, visited Sari Dheri and carried out trial investigations. She has come to the task determined to prove that the archaic figures are of great antiquity, and I am afraid that the same capacity for determination which ensured her reaching Sari Dheri will produce willy-nilly such proof. While one may regret this, it is to be hoped that her colleagues in Belgium will be sufficiently impressed by her report to undertake systematic excavation. Even if, by any chance, references to the Sumerian, the Cycladic, and the Ukrainian cultures do emerge, these will not, I am convinced, affect an accurate stratigraphical presentation, which will be invaluable.

I feel, however, that I have made a *prima facie* case for the Great Mother-Goddess in her manifestation as the Persian Anaitis, as the principal deity of Gandhara, and a late 3rd-century B.C. to a late 3rd-century A.D.-dating to cover the whole of the terra-cotta objects now emerging from the ancient sites of that province.

COMPARATIVE TABLE OF SITES

Site	Human figures	Animal figures in order of quantity	Black lined pottery	Gandharan stone or stucco work	Model cornucopia
TAXILA :—					
Bhir Mound	Archaic ; seated Kuvera ; male and female pair	Elephants, horses, oxen	Yes		
Dharamrajika Stupa	Archaic	Oxen, elephants	Yes	Yes	
Sirkap	Archaic, Hellenistic and Indian Seated Kuvera	Horses, oxen, elephants and birds		Yes	Yes
PESHAWAR DISTRICT :—					
Sari Dheri	Archaic, Hellenistic and Indian Seated Kuvera	Oxen, horses, birds, elephants, rams, camel, and buck	Yes	Yes	
Kula Dheri	Archaic and Indian Seated Kuvera	Oxen, a lion		Yes	Yes
Sahri Bahlol	Archaic and Indian Seated Kuvera	Rams, elephants and oxen	Yes	Yes	

The Lighter Side of Archaeology

By E. Cecil Curwen

ARCHAEOLOGY emphatically has its lighter side, though this is not always recognized by the lay public. The antiquary of the past was looked upon as a musty old bore—the reverse of entertaining company, while the modern archaeologist is apt to be depicted in the humorous press as an immature individual of either sex, dull, myopic and dowdy.

There is, however, quite a lot of humour in archaeology, both ancient and modern. Intentional humour is rare in ancient times, at least so far as evidence of it has survived. But what can one make, for instance, of the table of measures of capacity given in the ancient Irish laws ? After detailing these measures, and working up from the shell of a hen's egg as the smallest to the ' olpatraic ' as the largest, the passage continues :

> ' Four and twenty clerics sit down about it, and twelve laymen. They get an equal quantity of food, and double ale is allowed to the laymen, in order that the clerics may not be drunk, and that their canonical hours may not be set astray on them '.[1]

It almost looks as if the largest Irish measure of capacity was not the ' olpatraic which contains two olfeine ', but the layman who is equal to two clerics !

But if intentional humour is rare, a quality of naïvety, often amounting to humour of an unintentional kind, is frequently found, especially in the old Welsh laws. Dealing, for instance, with fines to be inflicted for certain offences, we read :

> ' Sixscore pence is due to the lord for ploughing up a road, but nothing is due for sowing it nor for harrowing it, since there is no penalty for improving it '.[2]

Times have changed, and improvements of this kind are no longer welcomed by the Minister of Transport. Or look at this delightful passage, apropos of the rights of property and the sharing of domestic furniture between husband and wife :

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[1] *Ancient Laws of Ireland*, III, 335–7.

[2] *Ancient Laws of Wales*, II, XVII, 9 (Dimetian Code).

> 'The wife of a *taeog* can give away nothing but her head-gear; and lend only her sieve, and that as far as her voice can be heard from the dung-hill requesting its return'.[3]

Oh! for a breath of this fresh air in Westminster! An official test of the legality of such a loan would be worth seeing—and hearing. Somehow one connects with it the following:

> 'Whoever shall sell a cat is to answer for her not going a caterwauling every moon'.[4]

There is another class of enactment which is not in any sense unconscious humour, and yet its very quaintness is refreshing. This is concerned with rough and ready methods of estimating quantities and defining qualities, generally in connexion with fines or compensations due for damage. Among these we have the following:

> 'The worth of a cat, that is killed or stolen; its head is to be put downwards on a clean, even floor, with its tail lifted upwards, and thus suspended, whilst wheat is poured about it, until the tip of its tail be covered; and that is to be its worth . . .'.[5]

The compensation due to another class of plaintiff is a gold cup,

> '. . . with a gold cover to it as broad as his face, and as thick as the nail of a ploughman who has been a ploughman for nine years'.[6]

For personal injury we have such compensations as the following:

> 'Of the worth of hair pluckt from the roots . . . a penny for every finger used in plucking it out, and twopence for the thumb, and twopence for the hair'.[7]

When, however, it was a case of a broken head it was a more serious affair with higher damages:

> 'The cranium, fourpence; for every broken bone, twenty pence, unless there be a dispute as to its diminutiveness; and if there be a dispute as to its size let the mediciner take a brass basin, and let him place his elbow upon the ground, and his hand over the basin, and if its sound be heard, let four legal pence be paid, and if it be not heard, nothing is due'.[8]

The significance of this last is explained by another passage which says:

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[3] *Ancient Laws of Wales*, I, 95 (Venedotian Code, II, I, 39).

[4] *Ibid.* I, 577 (Dimetian Code, II, XXXII, 4).

[5] *Ibid.* I, 577 (Dimetian Code, II, XXXII, 1).

[6] *Ibid.* I, 235.

[7] *Ibid.* I, 315 (Dimetian Code, I, XVII, 8).

[8] *Ibid.*

> ' Fourpence is to be paid to a person for every bone, taken from the upper part of the cranium, which shall sound on falling into a copper basin '.[9]

The responsibilities of the surgeon were clearly heavy, and out of all proportion to his fee, for

> ' The following is to be paid to a wounded person for whom it is necessary to have medical aid . . . : fourpence for a pan to prepare medicaments for him ; fourpence for the tallow ; one penny for his light nightly ; *one penny for the food of the mediciner daily ;* and one penny for the food of the wounded daily '.[10] (Italics mine !)

But if any reader is tempted to think that all damages were assessed on such simple and homely principles, let him try to work out the following :

> ' The worth of a man's fore-tooth is twenty-four pence, with three augmentations ; and it is thus augmented : the first augmentation is eight pence ; the second augmentation is tenpence halfpenny and the third of a penny ; the third is fourteenpence halfpenny and the third of a halfpenny and the ninth part of a halfpenny ; which when all reckoned together is fifty-six pence and a halfpenny and two parts of a halfpenny and the ninth part of a halfpenny ; and whosoever willeth to know the augmentation on the silver, it is necessary for him to augment in the first augmentation as much as the third of the sum upon which the augmentations occur, and place that in one sum ; and the second augmentation is, taking the third of that sum and adding it to the whole sum ; and the third in like manner, taking as much as the third, as the previous reckoning on the worth of a person's fore-tooth . . . '.[11]

We must confess to having forgotten about the tooth.

:: :: ::

Every archaeologist receives letters from people announcing some discovery they have made, or seeking an opinion on some finds. Generally these communications are sane and helpful ; occasionally they are neither. Here are some extracts from a letter received several years ago from an intelligent and well-educated man (now deceased), retired and living in the country. After submitting the inevitable

[9] *Ancient Laws of Wales*, I, 507 (Dimetian Code, II, XVII, 16).

[10] *Ibid.* I, 507 (Dimetian Code, II, XVII, 15).

[11] *Ibid.* I, 505 (Venedotian Code, III, XXIII, 25).

natural flint nodules bearing purely fortuitous resemblance to animal-bones, etc., he says :

' I take great interest in my surroundings . . .

' The Poor Law Institution has a very French appearance. From gossip, books, and deduction I am rather inclined to think that the Institute was built by French prisoners taken by the British at the Battle of Agincourt, and when stationed at G . . . In support of this there is in front of the building a Monkey Tree. It takes, I am told, 25 years between each set of branches. There are in this particular tree 19 such spaces.

' What makes the neighbourhood more interesting is the number of sandhills. A relic of the days of the Flood, when the comet hit the earth leaving a trail of volcanic sand in its wake, and drying up all the water, causing the people of the earth to live in darkness for a long period from perpetual fog. When the mist settled down the fog obscuring the heat of the sun caused the ice age.

' I dug up some time ago a large piece of iron stone, round and about the size and shape of a small football. I broke it open and found imbedded in it the lower jaw probably of a fox. I sent it to the British Museum and they said it was probably caused by huge pressure from the earth at a far distant date, and that this district was undermined by a large area of sheeted ironstone. I think this must be right as I can find water everywhere around me on digging about two feet.

' I hope I have not wearied you '.

My reply might have been : ' No, Sir, you have not wearied me ; you have cheered me along the dull and dusty path of serious archaeology '.

:: :: ::

Here is the latest pastime for archaeologists. You get the six-inch Ordnance sheets covering a limited area, and you proceed to cut with sharp scissors along certain boundaries. Each cutting drops out in one piece, and, of course, presents a definite shape If you get a sufficient number of them to resemble the twelve signs of the Zodiac you deduce the former existence of some kind of Temple of the Stars in the centre of the district concerned. Something of this sort has recently been done with great success in the Glastonbury area,[12] and the method has the obvious advantage that the conclusions attained are difficult to disprove. The writer is thinking of adopting a similar line of approach in solving various archaeological problems, such as the location of the Golden Calf.

:: :: ::

The following anecdotes are true, and are not in any way embellished or exaggerated :

A large car, complete with chauffeur, discharged two ladies at the foot of the hill on which Maiden Castle stands. They had come to

[12] *A Guide to Glastonbury's Temple of the Stars*, John M. Watkins, 1935.

view the recent excavations. Reading the notice about the Ancient Monuments Act and the guardianship of the earthwork, one of the ladies was heard to exclaim: 'Ancient Monuments Commission! Oh! I belong to that! What a pity I didn't bring my ticket! . . . Oh, no! it's not that; it's the National Art Collections Fund that I belong to!'

:: :: ::

A little girl of three was looking over her father's shoulder as he was perusing Fox's *Archaeology of the Cambridge Region*. Seeing a photograph of a complex array of iron objects dating from the Iron Age she exclaimed—'What's that, daddy? Is that an accident?'

:: :: ::

Many years ago we had just dug a small trial-trench across an old trackway, and when it was filled in and turfed over it bore a considerable resemblance to a grave. Someone thought it appropriate to chalk an epitaph on an old piece of iron, and on discussing what to put, the chauffeur said—'Why not put what we saw written on the back of that car this morning, sir: *Excuse my dust*'. Subsequently a little girl from a neighbouring cottage reported to her mother that someone had killed and buried himself there!

:: :: ::

Some young military officers were being shown round excavations in a small Iron Age hill-fort, and it was explained to them that the fort had been a place of refuge into which the neighbouring villagers could betake themselves and their cattle in times of danger.

'Well, that seems a silly thing to do!' exclaimed a budding strategist, 'Why did they bring all their cattle up on to the hill-tops in full view of the enemy?'

'Well, as they had no guns in the Iron Age, that wouldn't matter very much, would it?'

'Oh-h-h!?!' (The Dawn of a New Idea).[13]

:: :: ::

While digging at Hembury Miss Liddell was visited one day by a voluble old lady and her icily superior daughter. The old lady was very excited, for had she not that very morning been to see the excavations at Shaftesbury Abbey, where, she announced, they were digging up Saints, and (turning to her daughter) were not these excavations exactly

[13] Contributed by Mrs A. C. Roper.

the same ? ' Not at all ', said her daughter, with that condescension that comes from superior intellect, as she eyed the Neolithic hut, ' those were Roman Catholic ; this is Anglo-Saxon '.[14]

:: :: ::

Miss Liddell's foreman, Young, was working at the bottom of one of the huge post-holes at Hembury, when he was hailed to the surface by a bearded enthusiast, very ripe in years, who was anxious to be assured that ' this was really Roman '. Young painstakingly explained that it was not, but that the four post-sockets exposed were in fact part of a still earlier gateway, whereon the old man called to his wife who, heavily plumed and beaded, was plodding up the hill : ' Come and look at this, Maria ! They *say* they found a four-post bed in this hole ! '[15]

:: :: ::

A very stout party attacked Hembury Fort from a singularly uncompromising angle at the south, and having scaled all the ditches and ramparts at their worst, and clambered over one transverse ditch and bank to achieve in triumph the summit of the central mound, exclaimed : ' Now where is the fort ? '[16]

:: :: ::

A char-a-banc load of sight-seers surged into Stonehenge, headed by an old dame who, obviously impressed, stood by with hands folded on ample black bombazine and sighed : ' My ! isn't that a novelty ! '[17]

:: :: ::

The writer was making a plan of the neolithic ditches at the Trundle, sounding the ground with a rammer to ascertain their limits, and marking their outlines with pegs.[18] Several visitors to the famous beauty-spot watched the proceedings, obviously puzzled, till at last one well-dressed elderly gentleman ventured a polite enquiry, to which I replied :

' I am making a plan of the prehistoric entrenchment on this hill '.

' Of course ! Of course ! ' (*Exit in haste, with his eye on the towers of Graylingwell Asylum on the plain below*).

[14] Contributed by Mr Stuart Piggott, with Miss Liddell's approval.

[15] Contributed by Miss D. Liddell, F.S.A.

[16] Contributed by Miss D. Liddell, F.S.A.

[17] Contributed by Miss D. Liddell, F.S.A.

[18] See ANTIQUITY (1930), IV, 30–1.

During the restoration of Stonehenge in 1920, Mr R. S. Newall was standing on one of the lintel stones that had just been replaced in its proper position, when an old lady asked him in all seriousness—' Young man, are you puttin' this up again 'avin' 'ad it 'idden for the hair-raids ? '—' Yes, Madam ' was the inevitable reply.[19]

:: :: ::

A reputed Roman road at Henley in West Sussex has recently been proved by excavation to be medieval. A lady living in the locality had occasion to inform her maid of this fact, only to hear—' Well, miss, it has been a Roman road as long as ever *I*'ve known it ! '

:: :: ::

Lt.-Col. Hawley was digging a section of the ditch at Stonehenge, and the finds, layer by layer, had gone into three trays labelled 1, 2 and 3. As he bent down he felt a poke from behind. This he ignored, until another and more vigorous poke made him turn round to find an old lady prodding him with her umbrella. With a beam of satisfaction—' I think I'll 'ave one of the tuppenny ones, please Sir ', she said.[20]

:: :: ::

An Allegory concerning the Development of Iron Age Pottery in Southern Britain.—The handsome foreigner, Mr Hallstatt, came to Britain in his old age and married Mrs Deverel-Rimbury, who was coarse, fat and ugly. Shortly before the death of Mr Hallstatt Mrs Deverel-Rimbury gave birth to a son, Mr A1, who was a boorish youth, possessing traces of his father's handsome features, but much of his mother's clumsiness. In later life he grew more sober, discarded his mother's cheap ornaments, grew rather more polished, and changed his name to Mr A2. Finally he married a pretty and artistic French girl, Mlle B, who had recently settled in the southwest ; by her he had a son, Mr AB, who had much of his mother's good looks but not much originality. Mr AB married a Belgian girl, Mlle C, who presented him with a son, Mr ABC, who resembled both his father and his mother. Finally Mr Roman came along, strangled Mr ABC, and set up a chain-store where he sold mass-produced wares.

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[19] Contributed by Mr R. S. Newall, F.S.A.

[20] Contributed by Mr Stuart Piggott and Mr R. S. Newall, F.S.A.

The Use of Wood in Megalithic Structures

by A. Vayson de Pradenne

LONG ago one of our oldest French prehistorians, Gustave Chauvet, called attention to the probable existence of a wooden framework over the structures beneath tumuli. At a Congress of the A.F.A.S. held at Nantes in 1875 he described the digging of seven tumuli at La Boixe (Charente) containing burials of the polished Stone Age. Two of them covered true dolmens ; others simple rectangular or circular *cellae* enclosed within small dry-stone walls.

Returning to the subject in *Matériaux* . . . (1882–3, 539), he published under the title '*Deux dolmens en bois à Fouqueure*' the results of the careful excavation of two similar tumuli in the same region of Boixe. He concluded that inside those tumuli there had been burial-chambers covered with wooden roofs and flat stones. His deductions were made from (1) the external form of undisturbed tumuli with a depression in the middle ; (2) the presence of side-passages which would have served no purpose if the burials had not been placed in a chamber of some height ; (3) traces of dents visible on the broken bones, indicating a sudden collapse ; (4) the appearance of the broken pottery : (5) the angle of inclination towards the centre of the closing-stones, showing that they had leant towards the interior when the chamber had not yet fallen in.

The monuments in question, though not strictly megalithic structures, were associated with true dolmens, and in a general manner the cists belong to the final phase of the civilization which created megaliths, and they are derived from those structures.

The observations of Chauvet did not make much of a stir, and others which have been made in the nordic regions of the dolmen-zone do not seem to have been properly appreciated. But one should observe the importance that wood must have had in the structures of all historic and proto-historic periods in the great forest regions of Europe. Whilst in the Middle Ages in Italy and in Provence *castellieri*, *castelas* or *castelleras* of stone were built, in the flatter parts of France, richer in fine oaks, corresponding wooden towers were made on mottes or donjons. The walls of Celtic oppida in Burgundy, for example, were of stone intercalated with wooden beams. From remote

times down even to the present day Scandinavia has produced wooden structures resting on lower courses of stone, sometimes reduced to a few big blocks forming pillars. When, further, one notes that all the normal Neolithic and Bronze Age houses of northwest Europe were of wood, one is forced to take account of the probable presence of wood in certain instances associated with stone structures of more importance, contemporary with those houses.

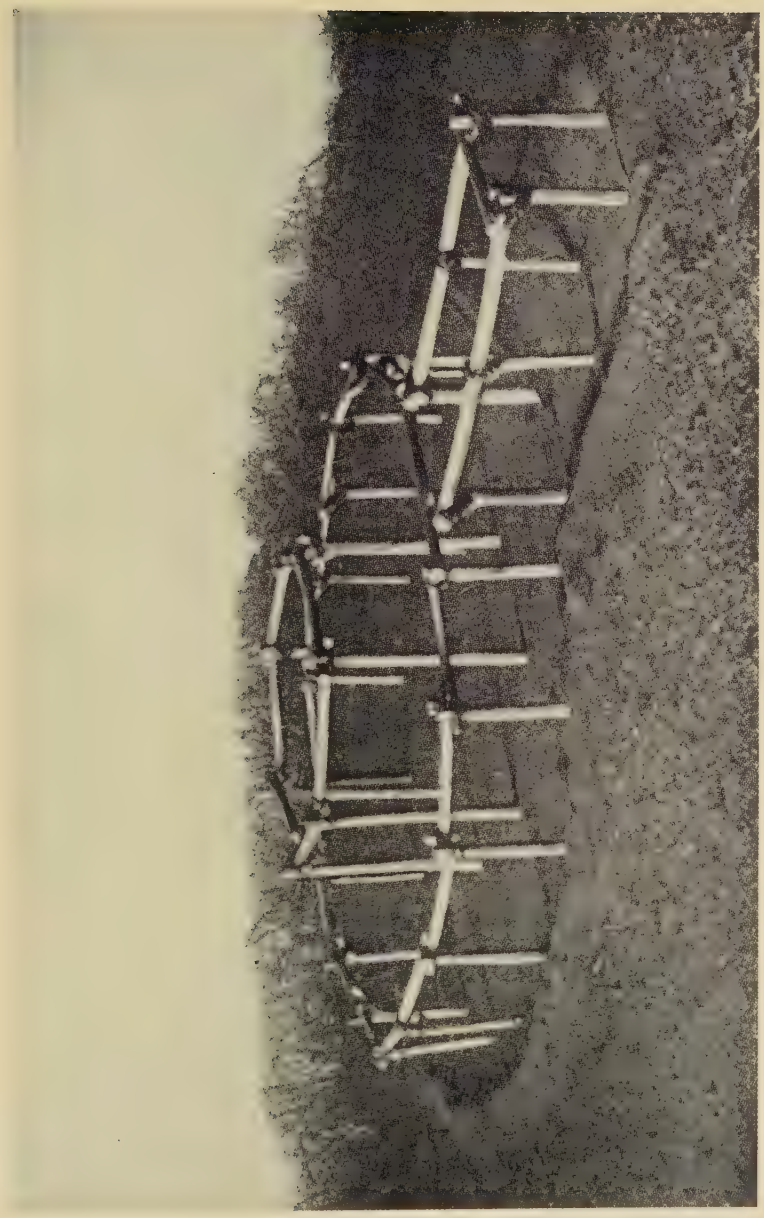
Let us examine, for instance, one of the most famous and imposing megalithic structures, that of Stonehenge, in Wiltshire. Admired, described and studied for centuries, it consists primarily of a great outer circle of dressed stones or pillars, their tops united by horizontal stones like lintels ; it is, in short, a colonnade surmounted by an architrave. The interior is set with another circle of stones of different provenance and of lesser height, whose tops are not united or worked. Then comes a group of tall stones analogous to those of the outer circle, also joined at the top by lintels and arranged in horse-shoe plan. The two uprights at the head of this horse-shoe are higher than the others, which themselves surpass in height those of the outer circle. Inside the horse-shoe is a flat stone lying on the surface of the ground.

Note the main frame-work of Stonehenge—outer circle and horse-shoe, both composed of uprights and lintels. A type of structure employed until quite recently by the North American Indians provides a remarkable analogy. There has been described[1] under the name of earth-lodge a large wooden building covered with branches and plastered together with earth. The whole affair consists of an outer circle of wooden posts joined together at the top by transverse beams, and of a central polygon composed of four to eight taller posts similarly united. The roof is a framework of big beams with the bark stripped off resting on this double support. It is conical in shape, or rather that of a truncated cone, for at the top is an opening to let the smoke escape and let the light in. The hearth is placed in the centre and the beds are round the edge between the posts. A kind of porch constructed like the main building and enclosed with leather hangings forms the entrance.

The similarity between the frame-work of Stonehenge, which can be reconstructed with certainty, and the design of an Omaha earth-lodge, is shown at once by PLATE I. But, further, even the relative proportions are retained. The authors tell us that the Omaha house has a diameter of between 20 and 60 feet ;

[1] A. C. Fletcher and Francis La Flesche, ' The Omaha tribe ' : 27th Annual Report of the Bureau of American Ethnology, 1911, pp. 97–8, and pls. 22–23.

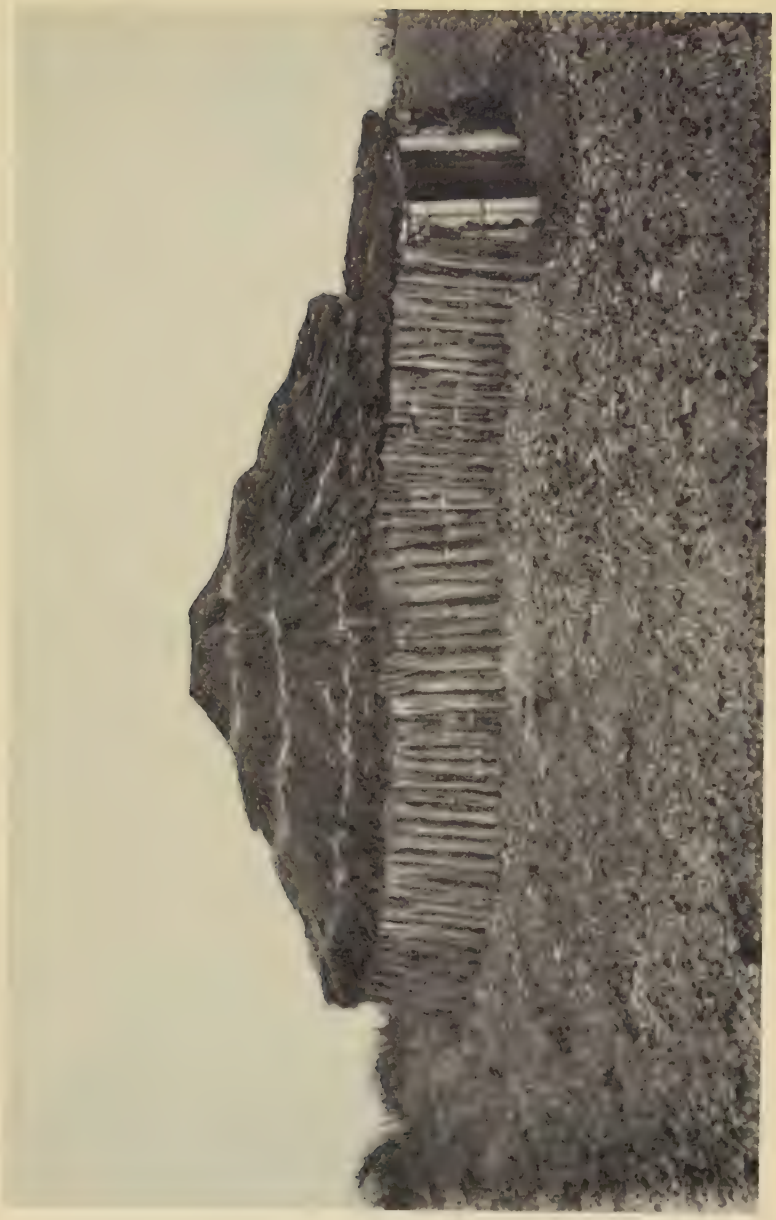
PLATE I



FIRST STAGE OF THE CONSTRUCTION OF AN EARTH-LODGE, OMAHA, NEBRASKA
after A. C. Fletcher and F. La Flesche

facing p. 88

PLATE II



EARTH-LODGE, OMAHA, COMPLETED EXCEPT THE TURF-COVERING
after A. C. Fletcher and F. La Flesche

PLATE III

OMAHA VILLAGE, NEBRASKA, *c.* 1860, WITH OLD EARTH-LODGE
after A. C. Fletcher and F. La Flesche

THE 'MEDRACEN', PROVINCE OF CONSTANTINE, ALGERIA
presumed to be a royal burial-monument before the Roman Conquest of Numidia. Diam. 59 metres
ph. l'Ofalac–Alger

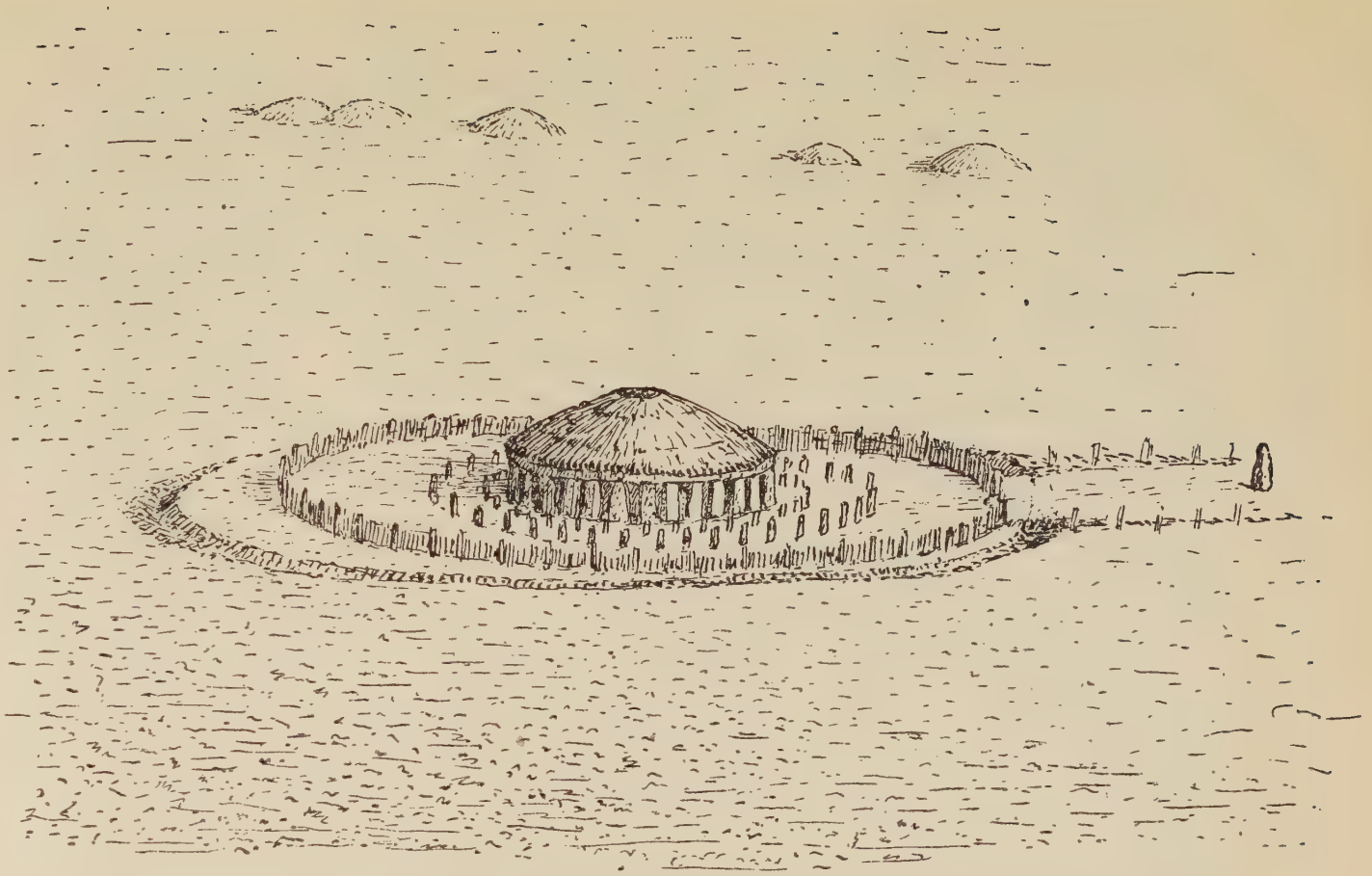


FIG. 1. SUGGESTED RECONSTRUCTION OF STONEHENGE

seen as in the oblique air-photograph reproduced by GRAHAME CLARK in '*The Timber Monument at Arminghall . . .*'. Barrow group visible in the background (*Proc. of the Preh. Soc.* 1936, pl. XIII)

that of the central part is about half as much ; the outer uprights are 8 feet high, the inner ones 10 feet.

The great circle of Stonehenge has a diameter of about 30 metres and the inner horse-shoe is about half as much ; the outer uprights are 4 metres high, and the inner ones 5 metres, except the two big ones which are 6 metres. Thus, allowing one metre as approximately 3 feet, the dimensions of Stonehenge are on the whole equivalent to those of a big Omaha house multiplied by $\frac{3}{2}$.

Is this merely a curious coincidence ? Note first of all that the North American environment where these structures are found has, or had until quite recently, close cultural analogies with the European environment at the end of the neolithic and beginning of the metal age—in the big leaf-shaped knives, the arrowheads, mallets and grooved axes, the appearance of the pottery, the bottle-shaped underground storage-pits near settlements—all closely parallel in both regions. There are therefore no *a priori* reasons against such a comparison.

But is such a comparison reasonable ? The nature and purpose of Stonehenge has been the subject of prolonged controversy, but no certain conclusions have been reached. Nevertheless it seems proved that, in spite of its orientation towards the point of sunrise at the summer solstice, it is not, as has often been claimed, an astronomical monument permitting of solar observations at certain periods of the year, for there is nothing exact and geometrically precise in its dimensions. There remains the very general hypothesis of a sacred monument, tomb or temple, or chamber of a palace. If it was a sacred monument it may have been open or covered in. Evans and Schuchhardt have made a comparison with the circle of shaft-graves at Mycenae.[2] But this was enclosed with simple raised slabs, as a kind of agora or public place in the midst of habitations, and does not resemble the complex and isolated structure which is Stonehenge.

More recently Newall, in a scholarly and well documented article,[3] has put forward the suggestion that Stonehenge was a place of multiple burials, for its plan approaches that of certain tumular burial-chambers. And in reply to the objection that there is too great a difference in the respective dimensions Newall adds :[4] ' Intermediate forms [between chambered cairns and Stonehenge] may possibly be provided by wooden structures, the archaeology of which is as yet only in its infancy. A

[2] See ANTIQUITY, 1936, X, 411.

[3] ANTIQUITY, 1929, III, 75–88. [4] loc. cit., pp. 87–8.

wooden structure has been found in a long barrow in Wor Barrow, and Bleasdale seems to be a wooden circle (*Trans. Lancs. and Cheshire Antiq. Soc.*, XVIII). Woodhenge . . . is undoubtedly similar to Stonehenge and may have had eight *trizulons*, if such a word can be allowed '. The author stopped short there and did not consider the possibility of these monuments having been covered. However, if one admits the comparison he establishes, it would be rather surprising to find tumular burial-chambers corresponding to open above-ground structures but reproducing their plan only. On the other hand, if one were to reconstruct in imagination such monuments as Stonehenge and Woodhenge, giving them a conical turf-covered roof like that of the earth-lodges, one would see that their external appearance would be almost identical, outside as well as inside, with that of a barrow, the mound covering a burial-chamber.

One may note also the analogy—taking into account the climate which is responsible for the difference of material—between Stonehenge and Woodhenge thus restored and the North African monuments of the Médracen type, which are wholly composed of stone (FIG. I and PLATE IV).

If the sepulchral hypothesis is rejected and that of a sacred meeting-place substituted, it should be noted that none of the different examples of sacred places in the open air known by ethnography and archaeology recall this architectural complexity. If it is a question of a temple designed to give shelter for sacred objects and priests, it is necessary that it should have been covered. Moreover the English climate at that date was even rainier than today, and the site itself, open to the winds, would seem very unsuitable for the establishment of an unsheltered sacred place, a roofless temple. If covered, however, the whole thing appears reasonable, and in conformity with the common idea of a temple with its series of enclosures and its general resemblance to an inhabited building.

The colonnade with architrave which forms the façade of the monument is a very characteristic architectural feature, and one which seems hardly intended merely to delimit an open space. The junction of the stones has been effected by mortise and tenon and these are features associated with the technique of woodwork ; it seems to indicate that the makers were more carpenters than masons, which is a good reason for supposing that they might have thought of a wooden roof. Finally, on the lintel-stone joining the two highest uprights of the horseshoe, two unexplained mortises have been observed ; they could be easily explained as supports for the roof-beams. If such mortises

do not occur on the other trilithons, one might suppose that it was due to the particular situation of the former, which is not on the same level and situated in the vicinity of the central opening. It would need special *points d'appui*, whereas on the others, which are all of the same level, one could ultimately place horizontal sleepers to support the rafters.

Would the imposition of a roof over Stonehenge appear to be technically impossible ? It must have seemed so in the eyes of certain persons, for Fergusson rejected the idea on *a priori* grounds without even discussing it. In actual fact, the space between the two successive circles of supporting-stones being about 7.5 metres, if one assumes an inclination of 30 to 40 per cent. for the roof, which appears to be that of the earth-lodge figured by A. C. Fletcher, the beams should be between 8 and 9 metres long, which is by no means prohibitive for people who raised stones of a weight of 40 tons, and placed on them lintel-stones weighing 7 tons. One could still find such beams in the fine forests of England without the slightest difficulty. The covering of the whole roof with turf was quite possible in view of the existing climate. Moreover a similar procedure is still adopted in Scandinavia.[5]

Thus a series of facts combine to show that the monument of Stonehenge, whether it was a tomb, a temple or a dwelling-place, must have been constructed in a manner comparable with the great wooden houses which were used by certain North American tribes. There seems to be no serious objection to this hypothesis.

As regards other megalithic structures, especially the great trilithons recorded at many places in the East, which resemble huge doorways, it would be desirable to conduct investigations, comparative, excavational, and technical, to see whether these monuments were not merely the relics of larger structures whose other elements, composed of wood, have disappeared.

Archaeology like palaeontology, should be mindful of perishable materials.

[5] Also in the Hebrides. O.G.S.C.

Notes and News

TRIBULUM-FLINT FROM SUSSEX

A flint, picked up on the site of the Roman Villa at Poling, near Littlehampton, Sussex, has been submitted to me by Mr E. W. Hulme, because it exhibits a certain degree of polish recalling that on sickle-flints (see ANTIQUITY, 1930, IV, 179 ff). It is here described by permission of the finder, Mr E. J. F. Hearne.

The flint is a piece of a flake of honey-coloured chert, 2.1 in. long, 0.8 in. wide, 0.4 in. thick, with parallel sides and triangular section. For purposes of description it exhibits—

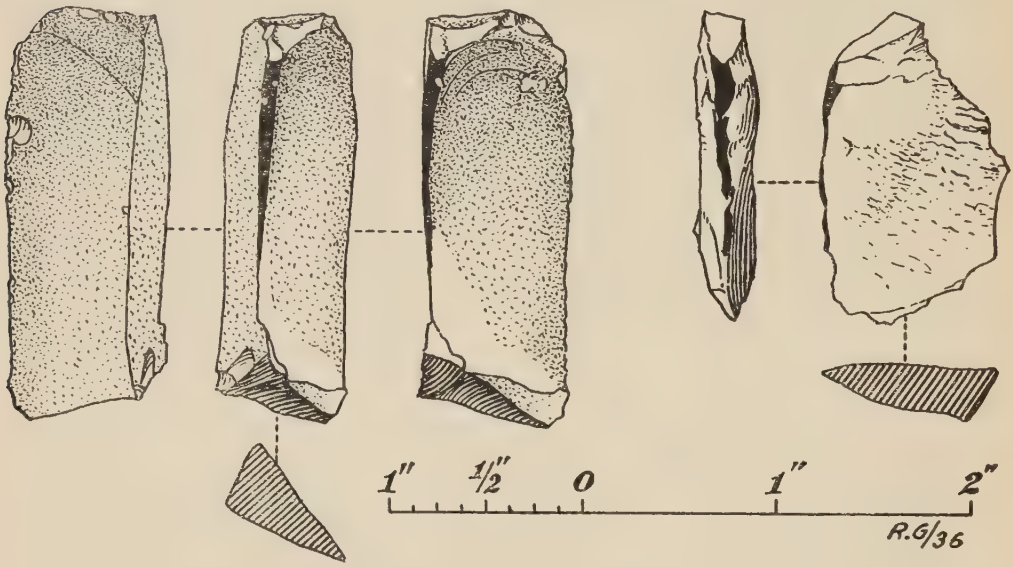
two ends : proximal and distal, each possessing a facet ;
three surfaces : one bulbar (though the bulb has gone), and two dorsal ;
two edges : a sharp and a blunt ;
a dorsal ridge, which is nearer the blunt edge.

A certain amount of diffuse gloss or lustre is evident over almost the whole of the flint, but attains its maximum intensity at the distal end. At this end the blunt edge has been worn down so as to be smooth, rounded and glossy, and the same feature, but in very slight degree, can be traced round the edges bordering the distal facet. The distal end of the sharp edge shows nothing but slight splintering.

The most striking feature of this flint is the pronounced attrition of the distal end of the blunt edge, which we have just described ; this puts it in a class apart altogether from the sickle-flints which may possess comparable gloss. The attrition and the gloss are different degrees of the same phenomenon, which, so far as we know, is produced by friction against silica or against some substance containing silica. Such substances include sandstone, sand, soil with flints in it, wood, straw and grass. In the case of sickle-flints the gloss is produced by prolonged friction against straw, but this latter is of too yielding a nature to produce attrition of the flint such as we have in the present case.

The writer feels that the key to the solution of the problem is to be

found by supposing that this flint belonged to a *tribulum*, or threshing-sledge, such as was used anciently by the Romans, and in modern times in the Near East. Mr Crawford recently studied modern examples of this implement in Cyprus (ANTIQUITY, 1935, IX, 335–9), and kindly gave the writer a specimen of one of the flint teeth with which the underside of the sledge is armed. When the Poling flint is compared with this, it is seen to be identical with it in all essential features, and it



Left: *TRIBULUM*-FLINT FROM SITE OF ROMAN VILLA, POLING, SUSSEX
Right: MODERN *TRIBULUM*-FLINT FROM CYPRUS
The black areas indicate attrition; the stippling indicates gloss

answers to the general description given by Dr Grahame Clark on p. 335 of Mr Crawford's note.

If the writer is correct in his diagnosis of this flint—and the conclusion seems to him inevitable—special interest attaches to the fact that it was found on the site of a Roman Villa. As to whether such a method of threshing was used in pre-Roman times in Britain we have as yet no knowledge, for it appears that this is the first example of a *tribulum*-flint to be reported from Britain.

For the nature of the *tribulum* and its method of use the reader is referred to Mr Crawford's note, cited above. E. CECIL CURWEN.

A FLANGED AXE FROM GREECE (PLATE I)

The bronze axe in the Metropolitan Museum of Art, New York, that I am allowed to illustrate here (PLATE I) through the kindness of Miss Richter, Keeper of the Classical Department, is notable both for its form and for its alleged provenance. In shape it generally resembles the characteristic North Italian flanged axes of Montelius' period I of the Bronze Age. But instead of the open ' nick ' in the butt that characterizes all axe-heads of the Italian family from the early flanged axe to the late winged palstave, it has a circular hole, apparently cast, in the butt end. Moreover, the object is said to have been found in Greece. The Museum records show that it was actually purchased from a dealer in Athens in 1920. Statements from such a source are admittedly unsatisfactory but there is no particular reason for doubting the dealer's word in this case.

Axe-heads with low flanges, hammered up, have been found at Thermi in Lesbos and in Anatolia, but specimens with cast flanges have not hitherto been recorded from the Aegean area. Generally indeed on the Greek Mainland and adjacent Islands the shaft was put through the axe-head in the Asiatic-Minoan manner and ' celts ' were only used as chisels (Mycenae, Sesklo, Levkas), but a flat axe with a very small peg-hole near the butt is known from Kythnos (there are parallels in Cyprus and elsewhere). The large circular hole in the butt of the Metropolitan Museum's specimen is, however, more reminiscent of the ' notch ' in the butt of Italian axe-heads. The corners of the notch are normally inturned so that the open space in the butt between them is rather more than a semicircle. Still a completely close circle, such as is here illustrated, is not achieved on any Italian bronze axe known to me. On the other hand a small stone axe-head from grave 2 in the ' Copper Age ' cemetery of Rinaldoni near Viterbo (*Bull. Pal. Ital.*, 39, pl. XIV, 6) may be a relevant analogy. The axe is 13.5 cm. long and the splayed blade proves that it is a copy of a metal axe. Right at the butt the body is pierced transversely with a circular hole, 7.5 mm. in diameter, and so, in proportion to the total size, more comparable to the hole under discussion here than the small peg-holes.

To this extent the allegedly Greek axe has distinct Italian affinities, but no exact parallels. On the other hand relations between Mycenaean Greece and Italy with its Alpine hinterland in the early Metal Age are indicated by the amber beads from the Shaft Graves at Mycenae and other tombs, the halberd from Shaft Grave VI (a local product of course) and a chisel from Shaft Grave IV with a row of small gold nails to

decorate its wooden handle (just as on a narrow flanged axe from an Early Bronze Age grave at Strättlingen near Bern (Åberg, *Bronzeitliche und Früheisenzeitliche Chronologie*, III, pp. 139 ff. and Karo, *Schachtgräber*, p. 103). Italian influences may be presumed to have been stronger in West Greece and might there have inspired the production of a flanged axe using the Italian-Alpine device for steadying the butt, but parallel to, rather than derived from, the mature Bronze Age types of the Peninsula. (A rudimentary notch is observable on stone and flat copper axes from the Mondsee and early hammer-flanged copper axes from upper Italy—cf. Pittioni, 'Italische Kerbe', *MAGW.*, 1931, LXI, 74–80, and Åberg, *op. cit.*, fig. 178).

Thus, while no bronze industry likely to produce an axe like ours is known as yet in Greece, the little comparative evidence available is not incompatible with the dealer's statement. It might at least encourage further researches in West Greece where early 'Peschiera' fibulae are relatively so common, but comparatively few axes of any sort are known. V. G. CHILDE.

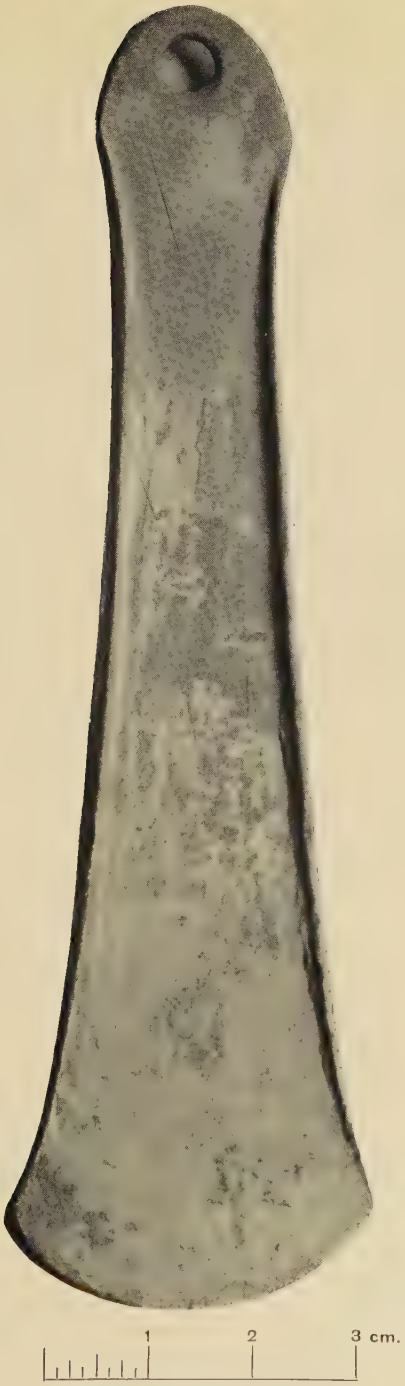
MEGALITHIC REMAINS, SOUTH UIST

1. On the northern slope of a low hill or common, called Leaval, in Kilbride, at the southwest corner of the island of South Uist, is a dolmen, less than half way up, almost opposite the north-western end of Loch Aisavat, and clearly visible from the road. Leaval common is separated by a strip of fields from the high road which runs from Polochar inn northward through the island.

In its present condition the dolmen consists of four uprights, one of which is rectangular in shape, while the other three are approximately triangular. The uprights are apparently complete and enclose a quadrilateral space, some 5 ft. 5 ins. long east to west, and about 3 ft. 9 ins. broad. The western, or rectangular, stone measures 4 ft. in height above ground and is about 3 ft. 1 in. wide. Immediately opposite is a triangular stone 4 ft. 9 ins. high and 3 ft. 2 ins. wide at the base. One of the other two, the top of which is not shown in the diagram, is somewhat shorter than the others. The uprights all stand in good position, roughly vertical, and are firmly embedded in the soil.

The entrance—on the left of the diagram—faces due south. It has a threshold stone flush with the floor and the borders of the adjacent stones are parallel and nearly vertical. The other spaces are much narrower and more irregular, and in the lower part of one of them a few small stones are built in to fill up the gap, suggesting that originally all

PLATE I



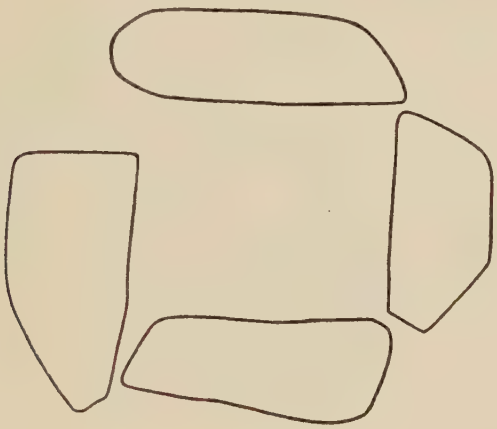
FLANGED AXE FROM GREECE. (*See* p. 95).

by courtesy of the Keeper of the Classical Department, Metropolitan Museum of Art, New York

facing p. 96

the spaces between the uprights, except perhaps the entrance, were occupied by dry walling.

Surrounding the dolmen are the remains of a raised platform of earth, approximately circular in outline. The periphery of the platform is outlined throughout by small stones, which lie almost in contact with each other, except for one or two gaps on the southern side. The platform is raised above the ground level only in the north, that is, down the slope of the hill. This enclosure has a diameter of about 67 ft.



Plan.

The dolmen is not placed centrally within it, but much nearer the southern or southeastern circumference. Traces of another circle, not so well preserved, but quite distinct through most of its extent, appear within the larger enclosure. The second circle also surrounds the dolmen eccentrically. Thus, at the south-eastern rim of the platform, the dolmen and its two enclosing rings are all very close together. On the opposite side the smaller circle is about 15 ft. distant from the dolmen and the larger circle about 56 ft. All the measurements are approximate. Few stones now remain in the outline of the innermost circle : two long ones which are adjacent and prone, and two or three additional small ones. Some small stones, partly buried in earth, are disposed irregularly around the base of the dolmen. It would seem

symbols, the arms being subsequent additions designed to remove their magic efficacy. Following this line of thought, a reference to Whiteleaf Cross has been seen in a charter of A.D. 903 (Birch, *Cartularium Saxonicum*, 603) regarding the grant of land ' aet thaem easteran hrisan byrge ', *i.e.* at Risborough. Among the boundary marks is Weland's ' stocc ', *i.e.* pole, tree-trunk, and this it has been thought means the Cross (cf. H. J. Massingham, *Through the Wilderness*, p. 293 ff. quoting Professor F. G. Parsons, with whom the theory originated). Reference to the charter, however, shows that the ' stocc ' is reached by going along a ' straet ', which means a Roman, or at least a paved, road, and no such can have passed under Whiteleaf Hill.

It might be suggested that the ' Globe ', the name which Wise tells us the common people applied to the base of the Cross in 1742, threw some light on origins. It seems probable however that this name arose from mere fancy, the vaguely rounded base, surmounted by the cross, suggesting the royal orb. In the 17th, and largely in the 18th, centuries this element in the regalia was known as the globe (N.E.D. *ad loc.*). One can imagine such a trope adorning a coronation sermon in the parish church. It is difficult not to doubt that the base is of similar natural origin to that of the triangular bare patch on the slope of the Chilterns known as the Watlington White Mark.

The only further evidence available, so far as is known to me, is that derived from place-names. In the charter quoted above the reference to ' thaem easteran hrisan byrge ' is interpreted by Professors Ekwall, Mawer and Stenton as ' the eastern brushwood-covered hill ', from Anglo-Saxon ' hris ', brushwood (*Place-Names of Bucks.*, p. 170). This then was the name of Whiteleaf Hill in 903. In 1541 Whiteleaf village appears as Whitt Light and in 1766 the Cross appears as Whitcliffe Cross in T. Jefferys' map of Bucks. Commenting on these forms Professors Mawer and Stenton say :—' The modern form is corrupt. The hill and cross must have been named from the white chalk hill in which the cross is cut. Cf. Whitcliff (Gloucestershire) which is Whytleyff in 1540 '.

From this evidence it is difficult to infer any considerable antiquity for Whiteleaf Cross. It was indeed already regarded as an antiquity by Wise in 1742—he thought it commemorated a Saxon victory over the Danes—but ingenious gentlemen of that time were easily satisfied, and the peasantry were complaisant to their desire for traditions of great age. In itself Wise's statement hardly puts the Cross back before 1700.

The place-name evidence gives further ground for caution. The 10th century charter reference to the hill makes no use of so convenient a descriptive feature as a cross. The present name in its true form of Whitecliff ignores the cross and seizes on the steep area of uncovered chalk which is now the ' base ' of the cross.

If the claim to antiquity of Whiteleaf Cross suggests doubts, that of Bledlow Cross provokes a more active scepticism. For Wise does not merely ignore that hill figure ; he seems to imply that in 1742 it did not exist. ' There is a village about a mile or two from it ', he says when speaking of Whiteleaf Cross (*Further Observations*, p. 40), ' which seems to point out the very spot on which the battel was fought : Bledelawe or Bledlow for that is the name of it, implying the Bloudy Hill '. This implication is further enforced by the following extract from a letter addressed by J. Collins from Newport Pagnell to Stukeley in 1757 (*Memoirs and Correspondence of William Stukeley*, ed. 1883 II, 10). I am indebted for this reference to Mr Stuart Piggott, who has also very kindly made extracts from Wise's not easily accessible work :— ' . . . there is a Danish camp at Bledlow, near Prince's Risborow ; and about two miles east of that place, on the side of a chalky hill, called White Leafe, is a large white cross, cut in the side of the hill, which may be seen as far as Oxford, 20 miles distance. This cross is thought to be in memory of a victory obtained over the pagan Danes, by king Alfred '.

The first notice of a cross at Bledlow seems to be in a paragraph in the *Gentleman's Magazine* for 1827 (XCVII, part 2, p. 79), where a description is given so similar to that printed by Lipscomb as his own in 1847 that it may well be the source of the latter. The conclusion that the Cross was made between 1757 and 1827 can thus be avoided only by assuming that it was so overgrown on the former date as to be then unknown and that it was found and cleaned at some time prior to 1827, by which date it had again become partially overgrown.

On the data available, therefore, we can hardly exclude the possibility that Whiteleaf Cross may be relatively modern, perhaps 17th century, and we must believe that Bledlow Cross was made in the later 18th century. Whiteleaf would have been formed by extending the central waterway of the old uncovered chalk area to make a tapering shaft and adding small arms ; its present form as a Greek cross and the broad, triangular shape of the ' base ' would be due to the repair of 1826. Bledlow would have been cut as a small copy of Whiteleaf, without a ' base ', and enlarged to its present respectable dimensions after 1847.

can safely infer the perishable bow and arrows from the more permanent arrow-heads. So there are relics and monuments from which the application of rules can be inferred, and others which may themselves be instruments of measurement or observation. The sort of rules which our forerunners and ancestors may be presumed to have needed and used may be discovered in the present work. Hogben's discussion of the difficulty and social importance of measuring time will make some speculations by orientationists seem more worthy of serious attention and indicate how they may be checked. ' Prehistoric astronomy ' is of course a happy hunting-ground for cranks, but the hints here given are quite reasonable. They will not lead to the sort of absurd fancies ' justified ' by non-existent markings on the stones of Stonehenge (*Wilts. Archaeological Magazine*, XLVII, 530).

Professor Hogben is by training a biologist. His book involves excursions into prehistoric archaeology, into Greek, Indian and Chinese philosophy, into the history of navigation and of artillery and all sorts of other domains. In a work of such vast scope specialists in particular spheres will no doubt find statements which to them are false. I could thus condemn some passages myself. But they do not in the least detract from the value and importance of the book as a whole. The first four impressions were disfigured by a rather large number of misprints. These (as well as the old-fashioned dating of a Chinese book) have been corrected in subsequent editions. Readers in possession of uncorrected copies may obtain a list of *corrigenda* by writing to the publishers.

V. GORDON CHILDE.

POMPEII. *By* R. C. CARRINGTON.* *Clarendon Press, Oxford*, 1936. *pp.* XII, 197, 24 *plates*, 21 *figs. and plan.* 10*s* 6*d.*

This excellent book fills an empty place in many respects. It absolves the English student of Pompeii from foreign general descriptions, and should enable the visitor to the site to get about without missing any essential point. The student of Roman history will also find that the work is a thorough scholar's presentation of the historical and social environment of the town, in which all ages of reader will discover something attractive. The achievement is no mean one, for Pompeii still remains, of all excavated Roman towns, that which can give us the most varied and the most intimate glimpses of the social order.

The arrangement of the material is therefore of much importance, and Mr Carrington is to be congratulated upon his presentation. He begins by describing the eruption which made the town famous, and later made excavation possible. The controversial question of the town's early development is

* Copies of ANTIQUITY containing Mr Carrington's illustrated articles on ' The Etruscans and Pompeii ', and ' The Ancient Italian Town-House ' can still be obtained (3*s* each, 24 Parkend Road, Gloucester).

skilfully handled, without bias, and gives the opportunity for a comparison with Herculaneum. Municipal and public life, closely connected with amenities and amusements, are next discussed. In private life, the chapters on town-houses and country dwellings are highly instructive, showing clearly the effect of fashion upon their design, curbed and at the same time guided by economic circumstances. The conversion of an old country-house into a factory reads like an instance from much more recent history, and emphasizes the essential universality of this phase of development. This leads naturally to the influence of private enterprise on public life, and to a description of the activities of the forum, its food-markets, cloth-hall, exchange and law-court, while the cults reveal, in the next chapter, the legacy of more primitive habits which clung about all the activities of life. The contractual deities, born of the locality and of the Roman colony, the gods of trade, and the countless guardian-spirits of street and home, remind us of the few generations separating this urban development from a simpler life more heavily darkened with terrors, whose every step required the sanction or help of unseen powers. When so many of the obligations remained to be fulfilled, it is small wonder that imported cults had made little impression, and that they were connected either with foreign trade or with foreigners themselves. The work closes with an interesting chapter upon architecture and art, which is full of excellent points. It gives a clear picture of the standards of art in a world where high living had blunted the perceptions of men devoid of artistic education, who were content to have their art manufactured for them in a cheap and vulgar market. As might be expected, the effect is of crude comfort, unrelieved by imaginative perception or good taste. But this is only one side of a general picture which has so stimulating an effect, that the book may be very heartily commended to all who would contemplate the bearing of antiquity upon modern thought and life.

I. A. Richmond.

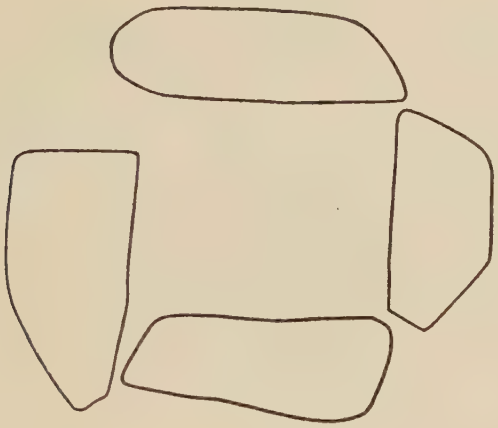
THE GREAT WALL OF HADRIAN IN ROMAN TIMES. *By* Paul Brown. With numerous illustrations by the author and Constance Whyte. *Heath Cranton, new and revised edition*, 1936. *pp.* 125, 4 *plates*, 38 *plans, and text-illustrations*, 3*s* 6*d*.

The first edition* of this book appeared in 1932 and the author now offers a second, revised, edition at a cheaper price. It is intended, to quote Mr Brown's preface, for the ' very large number of people who, while they possess little or no expert archaeological knowledge, are yet greatly interested in the Roman Wall ', and it is then with this aim in mind that the book must be judged. A brief discussion as to how the Wall came into being is followed in successive

* Reviewed Antiquity, vii, 239.

the spaces between the uprights, except perhaps the entrance, were occupied by dry walling.

Surrounding the dolmen are the remains of a raised platform of earth, approximately circular in outline. The periphery of the platform is outlined throughout by small stones, which lie almost in contact with each other, except for one or two gaps on the southern side. The platform is raised above the ground level only in the north, that is, down the slope of the hill. This enclosure has a diameter of about 67 ft.



Plan.

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that the platform represents the base of a round cairn or barrow, which originally covered over the dolmen and its contents. If this supposition is correct the inner circle within the substance of the cairn has parallels elsewhere, *e.g.*, in the horned round cairns of Ormiegill and Garrywhin in Caithness.

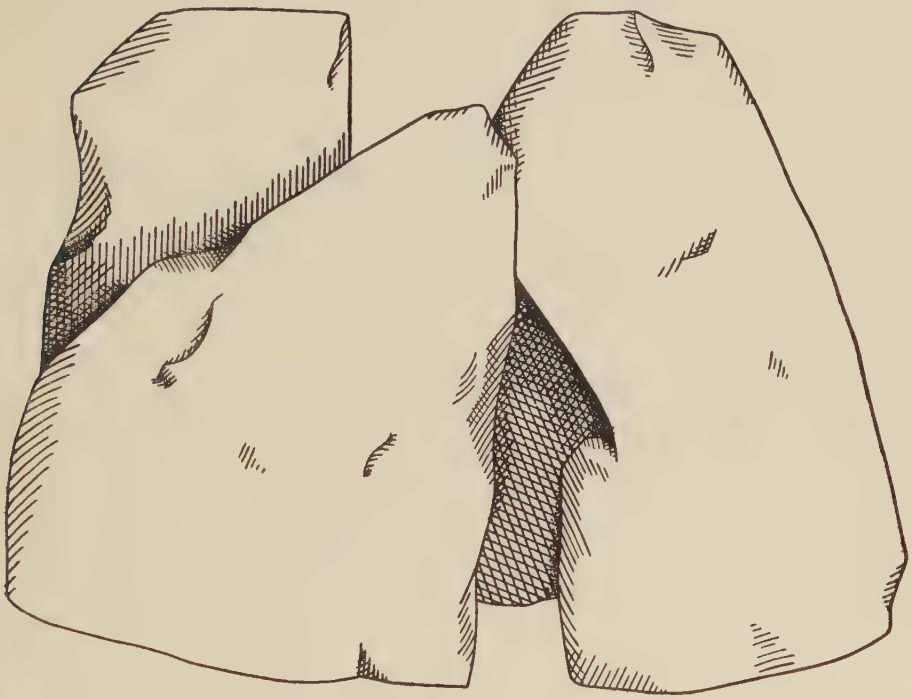
The neighbourhood of the dolmen is known locally as ' the Graves ', and the dolmen itself as the Witch's Grave. The Gaelic name for the dolmen, however, is Leac-na-bana-bhuidseach. Leac means a slab, flat rock or table-stone. Thus, leac-lighe is a recumbent grave-stone. Leac-na-bana-bhuidseach would mean ' the Witch's table-stone ' or ' grave-stone ', a name that appears to recall memories of a time when a capstone was present.

2. Nearer the top of Leaval are two prostrate long stones lying a few feet apart. One of these is about 11 ft. 8 ins. long ; the other 12 ft. 6 ins. The two are very similar in general appearance and have obviously been roughly worked. They are square in section at one end, but taper on two opposite sides towards the other. These stones are apparently fallen menhirs. They are now in grave danger of being broken up, as the base of one has recently been drilled in order to break off a squared section for building purposes. Fortunately, the stone appears to have fractured during the process and the attempt was abandoned. Locally the stones are known as ' limpet hammers '. I could obtain no information as to the origin of this name, nor of any legend associated with it. Possibly it is not of very ancient origin and derives from a humorous reference to their chisel-like appearance.

3. Not far from the fallen monoliths is a very curious structure that at first sight resembles a large capstone perched on very low uprights. The stone is somewhat boat-shaped and about 12 ft. 6 ins. long and 5 ft. broad in the centre. Its flat top is 32 ins. from the ground. The long axis lies east and west. Owing to the curvature of its under surface the space between the latter and the ground varies from 8 to 18 ins. The stone must weigh at least 3 tons. It rests securely on a slight cairn, or bed of earth and small stones piled beneath its centre, and does not rock.

These structures all appear to be examples of the local Archaean gneiss. Apparently they have not hitherto been recorded. I came across them quite by accident on the 21 July 1936. They are not mentioned in the Report on the Outer Hebrides of the Royal Commission on the Ancient and Historical Monuments of Scotland (1928) ; they are not marked on the Ordnance Survey map of Lochboisdale and

Eriskay (one inch to one mile) ; nor is there any mention in the volumes of the Proceedings of the Society of Antiquaries of Scotland to which I have had access. The discovery of the dolmen appears to be important as dolmens in Scotland are very rare. Daniel Wilson (*The Archaeology*



Dolmen from the East.

and Prehistoric Annals of Scotland, 1851), mentions the following : (1) a trilithon in Stirlingshire ; (2) several in Orkney, *e.g.*, the stones of Vea, a group at Vestrafiold ; and one in the ring of Stennis ; (3) two in the Isle of Arran ; (4) one in Forfarshire ; (5) several in Argyllshire—near Dunoon, in Cantyre, at Ardchattan, and at Achnacreebeg ; and (6) that at Bonnington Mains, Mid-Lothian, known, like the South Uist example, as The Witch's Stone. A. Rugg-Gunn.

THE CHILTERN WHITE CROSSES (PLATE II, p. 104)

It may be worth inquiring whether any evidence exists of the age of these two turf cuttings, which have attracted less discussion than the more spirited white horses and giants of Uffington, Cerne Abbas, etc. The *Victoria County History of Buckingham* (I, pp. 189–90) offers no pre-18th century evidence of the age of either Cross, and the Royal Commission on Historical Monuments (*Buckinghamshire* I, p. XXII and II, p. 8), while conjecturing that they may be late Celtic, confesses that nothing definite is known of their origin.

As will be seen from the air-photograph (PLATE II) the Whiteleaf Hill figure is in the shape of a Greek cross and is perched rather oddly on a large triangular ' base '. The cross is about 80 ft. overall in each direction and the width of each arm is about 20 ft. The turf cutting on Bledlow Hill, the next promontory of the Chilterns beyond the Wycombe Risborough gap, is closely similar, except that it has no ' base '. It is 75 ft. across with arms 15 ft. wide.

It is just possible that Bledlow Cross is mentioned in a document of 1350. In the Calendar of Patent Rolls there is an entry, dated 18 September in that year, recording an appointment to take and bring before the bailiffs of Edward, Prince of Wales, numerous persons indicted of ' felonies done together within the liberties of the honors ' of the said prince ' of Walynford and St. Valery '. Among these ill-doers is ' Henry atte Crouche of Bledelowe '. ' At the Cross of Bledlow ' is interpreted by Professors Mawer and Stenton (*Place-Names of Buckinghamshire*, p. 168), as a place-name, Bledlow Cross, and, if this is correct, it is plausible to infer a reference to the hill-figure. Mr O. G. S. Crawford has suggested, however, that ' atte Crouche ' should be read as equivalent to a surname, the phrase being interpreted as ' Henry Attcross, of Bledlow ', and, in the light of the frequent occurrence of 'atte Crouche', 'atte Cros', 'atte Bury', etc., as surnames in the fourteenth century, this view appears almost certainly correct.

If this be so, the earliest reference which appears to exist to either cross is in a work by Francis Wise, Radcliffe Librarian, entitled 'Further Observations upon the White Horse and other Antiquities in Berkshire ', (pp. 58), dated 1742. The following is an extract from this account (p. 34), which is the main source of the information given in vol. 2 of Lipscomb's *History of Buckingham*, 1847 :—

> ' Whiteleaf Cross in Buckinghamshire, so called from the hamlet of Whiteleaf in the parish of Monks-Risborough, is an

antiquity of the same kind with the White Horse ; being formed after the same manner, on the side of an high and steep chalky hill facing the South West. The perpendicular line of the Cross is near 100 feet in length, and about 50 in breadth at the bottom, but decreasing upwards till it scarce exceeds 20 at top. The transverse line is about 70 feet in length, and 12 in breadth and the Trench cut into the chalk is about two or three feet deep. It is formed besides upon a large Basis, whose height seems to be almost equal to the perpendicular line . . . The common people have learned to call this base *The Globe*, but I think improperly, its form approaching nearer to that of a triangle . . .

' Though the Cross is in no more danger of being totally obliterated, than the Horse, yet the like custom prevails of Scouring it up with a Festival ; but this has of late years observed no regular revolution. The common people still preserve some imperfect traditions concerning contributions raised upon this occasion, and even from some of the Colleges in Oxford. But if any estates have been formerly charged with the expence, time has long since made void the obligation : and the scouring is performed at the expence of the neighbourhood, but never without a merry making '.

Lipscomb adds that in 1826 the cross was repaired and re-marked by the Earl of Buckinghamshire ; and on his heirs the duty of cleaning it still rests in virtue of an Enclosure Act of George IV. It was presumably then that the cross assumed its modern form, which, it will be noticed, differs widely from that described by Wise. Thus the shaft, which was sharply tapering, has been given parallel sides ; the arms have been lengthened from 70 ft. overall to 80 ft. and widened from 12 ft. to 20 ft., the width of the modern shaft. The base also, which approached ' nearer to a triangle ' than to a ' globe ', has been made into a strict triangle and, if any reliance at all can be placed on Wise's illustrator, considerably enlarged laterally. It may be noted that Lipscomb in the course of a circumstantial description of the construction of Bledlow Cross (loc. cit. p. 110), which was then much overgrown, gives dimensions of 30 ft. overall in both directions with arms 6 ft. wide ; in 1847, therefore, it was less than half its present size. This is a warning that the present plans of the crosses are little evidence of their original plans.

In this connexion it may be mentioned that it has been conjectured (*e.g.*, V.C.H. Bucks. I, 189) that the two crosses were originally phallic

symbols, the arms being subsequent additions designed to remove their magic efficacy. Following this line of thought, a reference to Whiteleaf Cross has been seen in a charter of A.D. 903 (Birch, *Cartularium Saxonicum*, 603) regarding the grant of land ' aet thaem easteran hrisan byrge ', *i.e.* at Risborough. Among the boundary marks is Weland's ' stocc ', *i.e.* pole, tree-trunk, and this it has been thought means the Cross (cf. H. J. Massingham, *Through the Wilderness*, p. 293 ff. quoting Professor F. G. Parsons, with whom the theory originated). Reference to the charter, however, shows that the ' stocc ' is reached by going along a ' straet ', which means a Roman, or at least a paved, road, and no such can have passed under Whiteleaf Hill.

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That these suppositions would not be without analogy appears from the evidence of Wise himself. Speaking of the White Horse at Westbury, Wilts., where also the people had 'instituted' a revel or festival', he says that it had 'been wrought within the memory of persons now living, or but very lately dead' (*Further Observations*, p. 48). A more circumstantial story exists of the making of the turf cutting on the ramparts of Wandlebury Camp on the Gogmagog hills. Mr C. W. Phillips has very kindly called my attention to a passage in John Layer's manuscript work on Cambridgeshire, written *c.* 1640, as follows:—'I could never learn how these hills came to be called Gogmagog hills, unless it were from a high and mighty portraiture of a giant wch the schollars of Cambridge cut upon the Turf or superficies of the earth within the said trench, and not unlikely might call it Gogmagog, which I have seen but is now of late discontinued'. (Camb. Antiq. Soc. Octavo Publications, 1935, LIII, 110). The 'discontinuance' was of the giant; the meaning, for which 17th century parallels can be quoted, being that the figure was no longer kept up and had become overgrown. Evidently it was cleaned again, since we hear of it in the early 18th century, after which it seems to have been swallowed up, with so much of Wandlebury Camp, in the construction of Lord Godolphin's gardens.

In the light of this undergraduate frolic we may consider again the vague testimony of Wise's informants about the scouring at popular merry-makings of Whiteleaf Cross. It is difficult to avoid the suspicion that, within then living memory, the brighter youth of the two Risboroughs had borne their share in shaping the monument as it existed in 1742.

Measured plans of the Whiteleaf and Bledlow Crosses will be found on plate VIII of Sir Flinders Petrie's *Hill Figures of England* (Royal Anthropological Institute, 1926). W. LINDSAY SCOTT.

THE CALLEVA OF EPPILLUS

Certain coins of the Belgic prince Eppillus, son of Commius, bear the signature *Calle*, which has generally been taken to indicate that his capital was Calleva. The distribution of his coins, however, indicates that he ruled in Kent, so that, as Mr G. C. Brooke has said,[1] his capital can hardly have been Calleva Atrebatum, which is Silchester

[1] ANTIQUITY, 1933, VII, 283.

PLATE II

TURF-CUT CROSS, WHITELEAF HILL, BUCKINGHAMSHIRE. (*See* p. 100)
ph. R.A.F.

in north Hampshire. Silchester is believed to have been founded as the capital of his father, Commius, whereas the Belgic king of Kent is likely to have had as his capital the hill-fort of Bigbury, near Canterbury, which is now generally regarded as the scene of Caesar's first attack on a fortified position in Britain.[2] Both Silchester and Bigbury are situated on Tertiary soils which are likely to have been well wooded in a state of nature, and are still so to a large extent ; moreover Caesar describes Bigbury as being hidden in the woods, as it is today. The name Calleva is said by Professor Ekwall to be related to the Welsh *celli*, a wood,[3] and the fact that Silchester was known as Calleva of the Atrebates suggests that there may have been at least one other Calleva in the territory of some other tribe. Putting together these facts and inferences it seems reasonable to suppose that Bigbury may have been called Calleva Cantiacorum, or some such name, and that it was to this site that the signature *Calle* on the coins of Eppillus referred. Canterbury, the successor of Bigbury as the ' capital ' of Kent, was known as Durovernum Cantiacorum, or the ' fortress by the alder-swamp of the Kent-men ',[4] a name which looks like a pointed contrast with Bigbury, the ' woodland stronghold of the Kent-men '. E. Cecil Curwen.

CAMBAY BEADS

Mr H. S. W. Edwardes writes :—Your article in the September number on Cambay and the bead trade makes no reference to the flourishing bead industry at Bida, the capital of Nupe in Nigeria. I was District Officer at Bida for some years between 1905–1911 and saw the method of working. Beadmaking, glassworking and brass ware had been important industries for generations, and the product was distributed widely by traders. The cornelians and agates were brought down from somewhere north of Bornu by caravans. In the workshops at Bida they were ground down on large flat stone slabs brought from the Jebba district. A man sat on the ground before one of these slabs, which was kept wet, and rubbed the cornelian backwards and forwards in the arc natural to the position. The drilling of the hole in the finished bead took a man a day, and was done with a small drill tapped with a light hammer.

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[2] *B.G.*, v, 9. See R. G. Collingwood and J. N. L. Myres, *Roman Britain and the English Settlements* (1936), 44–5.

[3] *Oxford Dict. of English Place-Names* (1936), s.v. Silchester.

[4] Ibid., s.v. Canterbury.

The finished beads, in shape and material, were indistinguishable from those of early Egyptian make in the British Museum. The price of a necklace of these beads in Bida market was from two to four pounds. Frobenius in his *Voice of Africa*, page 444, refers to the Bida bead-working. He states that the imported raw material consisted largely of ancient beads from the Sahara. I cannot confirm or deny this.

' I have some old and rough beads from Nigeria, much like those you illustrate, but none of the fine Bida work in red cornelian.

' I suggest that, though evidently beads have been imported from India in quantities and for a long time, there is no doubt that the making of cornelian beads is a native African industry of great antiquity '.

The above was sent to Mr A. J. ARKELL, the writer of the article in ANTIQUITY, 1936, x, 292–305, who replied :—' When I wrote my article, I knew of the bead-making industry at Bida, but as I had no firsthand evidence about it, I did not mention it. Recently, however, Mr P. A. Legetmeier, the present District Officer at Bida, has very kindly sent me some interesting information together with specimens of the beads made at Bida. He writes : " I also enclose three specimens of stones polished at Bida by local stone-polishers, who rub the stones by hand on flat stone slabs. Also two stones as imported, one mottled grey and one red. Both these stones have been drilled through the centre. Sometimes imported stones are received undrilled, and they are then drilled locally. Stones are not cut at Bida, only polished. I regret I can tell you little about the stones or their origin. The Bida polishers buy the rough stones at Kano. I understand that some come from the Atlas mountains and some are brought from Egypt ".

' The two imported stones sent me from Bida are without doubt two modern Cambay beads. They have the polish still on them : one is of grey agate of the type of fig. 1 (ANTIQUITY, PLATE I, 296) and the other is of carnelian of the type of fig. 10 (*ibid.* PLATE II) illustrated in the plates accompanying my article.

' Two of the three worked beads sent from Bida are long barrels, one of grey and one of white agate, very similar to the second bead from the left in my fig. 17. They are of a higher polish and more regular shape than the usual modern Cambay bead. I should imagine that they have been rubbed down from beads of the type of my fig. 3. The third worked bead is a cylinder of carnelian about $1\frac{1}{2}$ inches long, with a short taper at one end. It is not very elegant, and could have been

made from a Cambay bead of the type of my fig. 10, like the one sent in an unworked condition.

'I have asked Mr Legetmeier to send me specimens of the undrilled stones and of those which are said to come from the Atlas mountains. I shall be surprised if the Bida workers can bore a long hole in a stone as hard and brittle as agate. I suspect that the undrilled stones will turn out to be jasper or serpentine which are occasionally worked into beads in Africa. It is just possible that they may be the Garamantian carbuncles mentioned by Pliny, for which I have been searching for some time.

'I have now no doubt that most of the agate and carnelian beads worked at Bida come from Cambay. In addition to the evidence of the beads from Bida themselves, Mr Edwardes states that the carnelians and agates were brought down "from somewhere north of Bornu by caravans". The easiest caravan route from Egypt to the Sudan (using that term in its wide sense) runs from Cairo *via* Siwa, Augila, Murzuk, and Bilma to Bornu, whence there was a main road westwards to Kano, as may be seen on map XIII of Bovill's *Caravans of the Old Sahara*. On p. 295 of my article I mentioned that the Cambay merchants of Cairo till recently sent beads to Kano by caravan. Further the present District Officer at Bida states that the Bida craftsmen get their stone beads from Kano, and had heard that some of them came from Egypt.

'It is interesting to note that while beads of the type of my figs. 1 and 10 cost a penny or so each at Cairo, they fetch from 1*s* 6*d* to 2*s* by the time they reach Bida.

'I am grateful to Mr Edwardes for drawing attention to the bead-making at Bida, but I think that a genuine native African carnelian bead industry has yet to be found'.

Reviews

MATHEMATICS FOR THE MILLION: a popular self-educator. *By* LANCELOT HOGBEN. *George Allen and Unwin*, 1936. *pp.* 647 *and over* 200 *illus.* 12*s* 6*d.*

Why should a book on mathematics be reviewed in a journal devoted to archaeology? One obvious reason is that every science, including ours, makes use of mathematics. The archaeologist ought to be able to apply trigonometry intelligently in surveying a site and its environs; he ought at least to know how latitude and longitude can be determined by observations on the sun and in what sort of ways times and seasons might be demarcated by the stars. He should also be prepared to make more extensive use of mathematical methods, but should at the same time be aware of their limitations. Nowadays there is a tendency to believe that a subject is scientific only in so far as it uses mathematical language—to quote a recent book, 'the more scientifically accurate knowledge becomes, the more must its truths be expressed in mathematical terms'. Now, of course, we all want to be scientific. How convenient if we can achieve that distinction by dressing up our observations in mathematical formulae! A fine corrective to such vain expectations is Hogben's exposition of the idea (valid only within certain limits) that mathematics is essentially a certain kind of language with its conventions nicely adjusted to its functions, but possessing in itself no peculiar veracity. Perhaps the least accurate way of reporting the stratigraphy of a site would be to write:—'A ware: level IV, 147 sherds; level III, 14; level II, 0'; . . ., if all the 147 sherds from IV might well belong to a single pot whereas the 14 from III were rims of as many distinct vessels.

Still, many of us believe, probably with justice, that statistical methods might help us to be more scientific. Having been trained in classics, we may be too much overawed by the calculations involved, or the symbols employed, even to find out how we could use them; but we may still bow to the authority of those who can employ a language we are now too lazy to learn. I long ago recognized that the 'Cephalic Index' gave no useful information about the relationships of prehistoric corpses. But I am convinced that an index, obtained by combining a vast number of measurements with the aid of an electrical machine in accordance with a, to me, incomprehensible formula, must possess great value—*mana* indeed! The careful reader who has worked his way to page 640 in this book, doing the exercises as he goes along, will at least understand what statisticians

talk about and what their favourite symbols mean. On his way thither he will have learnt or recalled the relatively simple rules of geometry, trigonometry and astronomy that he now needs in his archaeological capacity.

Most of this he should indeed have learned at school. If he did not or has forgotten it, bad teaching is to blame. Hogben's book shows how even this sort of mathematics can be made interesting. Not that ' Mathematics for the Million ' means ' Mathematics without Tears '. That only a charlatan would pretend to purvey. The book is serious and demands close attention and active participation by the reader. It is true that its author has ' gilded the pill '. The gilding takes the form of often sarcastic comments on dialectical materialism, the Nicene Creed and other relevant topics. The asides are so witty that chapters I to V shortened the tedious journey from Edinburgh to London better than my usual Poirot, and gave my fellow-travellers the spectacle of a sober antiquary convulsed with laughter—over a book on mathematics.

But it is not really this gilding that makes the book both readable and educative, but the historical method of presentation. Principles and methods are presented not as parts of a perfect system of truth existing eternally in boring isolation from human needs, but as discoveries men made in the great adventure of civilizing themselves by mastering external nature. Multiplication and fractions, theorems about angles and circles, graphs, the calculus, the theory of probability, are presented as responses to men's need to estimate the yield of a field, to determine the season for sowing, to find his position at sea, to calculate the range in using artillery, to devise a reliable clock, to avoid losses in insuring merchant cargoes and so on. In a word mathematics is presented as part of men's cultural equipment, and the development of the several processes is correlated with historical changes in that equipment as a whole. And this is a second and more fundamental reason for mentioning the book in ANTIQUITY. Mathematics is one of the subjects which archaeology ought to be ' about '.

The archaeologist has now made substantial progress in his primary task of classifying his ' celts ' and his ' camps ' for arrangement in museum cases or plotting on maps. He can now allow himself the luxury of recalling that his relics and monuments were made by men for intelligible human purposes. He can try and interpret them as adjustments to an environment and as applications of science. The progressive emancipation of *Homo sapiens* from brutish dependence on the external environment presented by Nature has been due to increasing application of systematized knowledge about Nature. In the careful selection of stones for tools and in the colouring of a pot even the prehistorian can recognize palaeolithic geology and neolithic chemistry. Presumably there was a prehistoric mathematics too. Of course, in default of writing, its instruments—rules for reckoning for instance—have often perished. Still archaeology

can safely infer the perishable bow and arrows from the more permanent arrow-heads. So there are relics and monuments from which the application of rules can be inferred, and others which may themselves be instruments of measurement or observation. The sort of rules which our forerunners and ancestors may be presumed to have needed and used may be discovered in the present work. Hogben's discussion of the difficulty and social importance of measuring time will make some speculations by orientationists seem more worthy of serious attention and indicate how they may be checked. 'Prehistoric astronomy' is of course a happy hunting-ground for cranks, but the hints here given are quite reasonable. They will not lead to the sort of absurd fancies 'justified' by non-existent markings on the stones of Stonehenge (*Wilts. Archaeological Magazine*, XLVII, 530).

Professor Hogben is by training a biologist. His book involves excursions into prehistoric archaeology, into Greek, Indian and Chinese philosophy, into the history of navigation and of artillery and all sorts of other domains. In a work of such vast scope specialists in particular spheres will no doubt find statements which to them are false. I could thus condemn some passages myself. But they do not in the least detract from the value and importance of the book as a whole. The first four impressions were disfigured by a rather large number of misprints. These (as well as the old-fashioned dating of a Chinese book) have been corrected in subsequent editions. Readers in possession of uncorrected copies may obtain a list of *corrigenda* by writing to the publishers.

V. GORDON CHILDE.

POMPEII. *By* R. C. CARRINGTON.* *Clarendon Press, Oxford*, 1936. *pp.* XII, 197, 24 *plates*, 21 *figs. and plan.* 10*s* 6*d.*

This excellent book fills an empty place in many respects. It absolves the English student of Pompeii from foreign general descriptions, and should enable the visitor to the site to get about without missing any essential point. The student of Roman history will also find that the work is a thorough scholar's presentation of the historical and social environment of the town, in which all ages of reader will discover something attractive. The achievement is no mean one, for Pompeii still remains, of all excavated Roman towns, that which can give us the most varied and the most intimate glimpses of the social order.

The arrangement of the material is therefore of much importance, and Mr Carrington is to be congratulated upon his presentation. He begins by describing the eruption which made the town famous, and later made excavation possible. The controversial question of the town's early development is

* Copies of ANTIQUITY containing Mr Carrington's illustrated articles on 'The Etruscans and Pompeii', and 'The Ancient Italian Town-House' can still be obtained (3*s* each, 24 Parkend Road, Gloucester).

skilfully handled, without bias, and gives the opportunity for a comparison with Herculaneum. Municipal and public life, closely connected with amenities and amusements, are next discussed. In private life, the chapters on town-houses and country dwellings are highly instructive, showing clearly the effect of fashion upon their design, curbed and at the same time guided by economic circumstances. The conversion of an old country-house into a factory reads like an instance from much more recent history, and emphasizes the essential universality of this phase of development. This leads naturally to the influence of private enterprise on public life, and to a description of the activities of the forum, its food-markets, cloth-hall, exchange and law-court, while the cults reveal, in the next chapter, the legacy of more primitive habits which clung about all the activities of life. The contractual deities, born of the locality and of the Roman colony, the gods of trade, and the countless guardian-spirits of street and home, remind us of the few generations separating this urban development from a simpler life more heavily darkened with terrors, whose every step required the sanction or help of unseen powers. When so many of the obligations remained to be fulfilled, it is small wonder that imported cults had made little impression, and that they were connected either with foreign trade or with foreigners themselves. The work closes with an interesting chapter upon architecture and art, which is full of excellent points. It gives a clear picture of the standards of art in a world where high living had blunted the perceptions of men devoid of artistic education, who were content to have their art manufactured for them in a cheap and vulgar market. As might be expected, the effect is of crude comfort, unrelieved by imaginative perception or good taste. But this is only one side of a general picture which has so stimulating an effect, that the book may be very heartily commended to all who would contemplate the bearing of antiquity upon modern thought and life.

I. A. Richmond.

THE GREAT WALL OF HADRIAN IN ROMAN TIMES. *By* Paul Brown. With numerous illustrations by the author and Constance Whyte. *Heath Cranton, new and revised edition*, 1936. *pp.* 125, 4 *plates*, 38 *plans, and text-illustrations*, 3*s* 6*d*.

The first edition* of this book appeared in 1932 and the author now offers a second, revised, edition at a cheaper price. It is intended, to quote Mr Brown's preface, for the ' very large number of people who, while they possess little or no expert archaeological knowledge, are yet greatly interested in the Roman Wall ', and it is then with this aim in mind that the book must be judged. A brief discussion as to how the Wall came into being is followed in successive

* Reviewed Antiquity, vii, 239.

chapters by reconstructions of certain typical sites along it, as they may have appeared in the Roman period. The fort, civil settlement and milecastle at Housesteads and the fort at Chesters—sites that the visitor with little time to spare, should visit first—are described in more detail. Concluding chapters refer briefly to other forts along the line of the Wall (8) and help the reader to keep in touch with current excavations (9).

The plates are good. The reconstructions (pls. 1–3 and figs. 3, 8, 10 and 25) are most useful and will answer many of the questions that are asked by the ordinary visitor to the Wall, if the reviewer's experience is any guide. In figs. 10 and 21 the names of the other main streets of a fort might have been inserted, while the ' inner courtyard ' of the *principia* was more accurately a large, roofed hall (pl. 2 and figs. 10 and 22). The scheme of small drawings in the text is sound and likely to appeal to the reader, but many of the drawings themselves are quite inadequate. Figs. 11–12 do scant justice to Samian pottery; figs. 6 and 16 require redrawing to a larger scale, while fig. 34 is useless. Mistakes occur; the reviewer has noticed 1903 for 1898 (p. 47); buildings, for rooms (pp. 59–60); appertures (p. 62); was for were, and south for north (p. 63); eastern for western (p. 71); second for third (p. 78); *ballistrae* (p. 96); former for latter (p. 102): the description of a hypocaust requires amplification (pp. 63–4), preferably with the help of a diagram, for its mode of action appears to be far from clear to numbers of visitors to Roman sites. The blocking of milecastle and fort gateways was not necessarily a late feature (pp. 73–4).

Finally, in the ' Conclusion ' (pp. 119–21) there are some mis-statements likely to lead readers astray. Mr Brown advances as an argument that the Wall ' was a success ', that the Wall-ditch was never completed. The ditch actually accompanies the Wall wherever the ground requires it, except for a few hundred yards at one point where it is unfinished owing to the special conditions prevailing there. The ' Wall frontier ' includes both Wall and ditch, and sectional variation provides no argument for or against the efficacy of the whole, while the counter-argument as to its inadequacy, that the frontier fell four times, is useless unless the state of the garrison at the time is taken into account.

K. St. Joseph.

EXCAVATIONS AT MINTURNAE. Vol. 1, Monuments of the Republican Forum. *By* Jotham Johnson. *Philadelphia: University of Pennsylvania Press*, 1935. *pp.* vi, 122, *with plan and* 45 *figs.* 22*s* 6*d.*

This volume describes an American excavation of the site of Minturnae, an Ausonian town on the west bank of the Liris, and the most southerly of Rome's early maritime colonies, founded in 295 B.C. on the fringe of Campania.

The place began as a small rectangular post, very like Roman Ostia or Pyrgi in plan, about 182 by 155 metres in size, with a wall of polygonal masonry and projecting angle-towers. Outside its west gate lay a temple precinct, containing the shrine of three gods, with three sides bordered by a portico, and the fourth open to the main street (Via Appia). This was built about the opening of the second century B.C., and replaced an earlier temple and shops, the latter so thoroughly removed as almost to escape notice, but heavily burnt. A fire caused by lightning also destroyed the later temple and portico after 65 B.C., an act of God commemorated by a *bidental*, or ritual pit, containing fragments of the burnt work. The architectural features of the rebuilt structure include stuccoed fragments of considerable interest to the student, both for their rarity and their design. The area thus rebuilt did not, however, satisfy the needs of the more spacious Imperial Age. A larger portico was built on the other side of Via Appia, while the space enclosed by this one was occupied by a second temple, perhaps connected with the Imperial Cult, and the north bay of the portico was occupied by the dressing-rooms of a theatre. Later, the south ends of the portico accommodated fountains.

While this small and interesting area may now be considered fully studied, it remains to define its relation to the city at large. The key to this matter lies in the history of the fortifications, which are to be described by Dr Maiuri elsewhere. Until this description appears, it will be difficult to assign these buildings to their proper place in the development of the Roman *colonia*, and to discern their relation to the earliest fortification. Similarly, the coin-list, which unfortunately does not include two important hoards already published elsewhere, lacks the information about the later history of the town which should be its corollary. It is to be hoped that future volumes will gather together these various yet interesting threads into a unified presentation. I. A. RICHMOND.

DER OSTSKANDINAVISCHE NORDEN WÄHREND DER ÄLTESTEN METALLZEIT EUROPAS (Skrifter utgivna av Kungl. Human. Vetenskapssamfundet i Lund, XXII). *By* J. E. FORSSANDER. *Lund*, 1936. *pp.* 296 *and* 80 *plates.*

The astonishing wealth and variety of the Northern Stone Age are no longer taken as evidences of its exceptional antiquity or originality ; they are admittedly due to the persistence of a neolithic economy when even Atlantic and Danubian peoples were organized for the use of metals. This fact, recently stressed once more by German authorities like Böhm, Schwantes and Sprockhoff, is fully admitted by Forssander and once more demonstrated by his well documented and illustrated analysis of the Northern material. But he argues that the reaction against the old notions of Montelius and the extravagances of

incompetent disciples like Reinerth has gone too far. The now celebrated hoard from Bygholm in Jutland certainly demonstrates that two-thirds of the Northern Neolithic Age—the Passage Grave and Stone Cist epochs—were contemporary with a fully developed Metal Age not all too far away. But that need not mean that the greater part of the Passage Grave epoch already ran parallel to the Early Bronze Age of Britain or the Aunjetitz culture of Central Europe. In his first chapter Forssander is at pains to establish the reality of a Continental Copper Age, anterior to Aunjetitz, in which the axes, dagger and arm-cylinders of the Danish hoard might find a place of origin. The general association of such copper flat-axes with the northern Megalithic culture (first noted by Kersten of Kiel) is well demonstrated by the map on p. 11, but this shows too that they need not be derived from the West as, though restricted to the coasts in the North, they spread across Germany towards Central Europe. Moreover, though objects of Aunjetitz type have been found in passage-graves, they are associated, as Nordmann too has insisted, with the later interments in such family vaults and with relics proper to the Stone Cist period.

This period itself cannot be treated as a mere phase of transition from Passage Grave Stone Age to Tumulus Bronze Age, but as equal in length to the former ; in Västergötland, for instance, 4266 out of 7372 Stone Age finds belong to the Stone Cist epoch. It is the Stone Cist epoch that is as a whole contemporary with the Aunjetitz phase in Central Europe. But as far as grave-furniture is concerned Scandinavia was still formally neolithic ; the finest flint daggers, the ' fish-tailed ' type IV, imitate bronze-hilted metal daggers of the advanced Aunjetitz phase. Still a native metal industry was already beginning in the North during this period. Its earliest products are the northern flanged-axes of Pile type (the North German bronze-hilted daggers of this age are not Northern and reach Denmark and Scandinavia only sporadically). These native Pile-axes reveal Anglo-Irish rather than Central European inspiration. Later on products of this native metallurgy appear in graves. But the types now characterizing this developed Period I of the Northern Bronze Age—socketed spear-heads and short-swords—are inspired by Central European models. Yet they must not be derived from the first period of the Central European Bronze Age : though parallels occur in a few late Aunjetitz hoards, the ancestors really belong to the phase of transition from Early to Middle Bronze Age (Früh- to Hochbronzezeit) and are to be found in such hoards as Hajdu Samsón and Cascina Ranza. Still inspired from Central Europe, the native craftsmen advanced to the superb productions of Northern Period II. And the native industry, at first confined to the extreme south, was now established in Central Sweden too (while only 55 axes of Period I are known from Central Sweden as against 161 in Scania, the figures for Period II are 218 and 245 respectively).

Still even then stone cists were still being used as burial places, and Central European weapons of Reinecke's phase C were still being copied locally in flint, like the Aunjetitz daggers before them. Expressed in absolute dates Forssander concludes that the Passage Grave epoch should begin about 2200 B.C., and end towards 1800—a century after the beginning of the Aunjetitz culture. Period I of the true northern Bronze Age (socketed spearheads) would then begin about 1550 B.C.

For the demonstration of this thesis Forssander is not content with a penetrating analysis of the local material. The above results have been disentangled from long excursions into the prehistory of regions as far away as Hungary and Spain. In these digressions the author has necessarily to rely mainly on second-hand information, but the summaries and illustrations comprised in them are convenient and often illuminating. We may commend for instance the distinction between the primary type of polygonal battle-axe, common to Scandinavia and Copper Age stations in the Alpine zone, and the secondary type, found in Danish dolmens, and the overlap between northern dolmen period and Alpine copper age deduced therefrom. Again the map on p. 84 of Early Bronze Age hoards reasonably attributable to merchants (*i.e.*, containing more than ten objects) graphically shows how the economic system of the Central European amber route was separated by a conspicuous gap in the Rhineland, Switzerland and Central France from the contemporary Atlantic system (one south French depôt should, however, have been included in the map). Though twice as many octagon-hilted swords have been found in the Northern province as in Central Europe, a minute study of their decoration shows that, even when the designs look Northern, the specimens from the former area are all imports. Forssander uses this instance effectively to show the deceitfulness of mere distribution as a clue to origin and applies this to Hajdu Samsón swords.

In the Iberian Peninsula Forssander rightly insists that Bell Beaker pottery must not be treated as an unitary chronological group. But unfortunately he does not extend the same caution to Central European bell-beakers which he, like Åberg, Burkitt and Childe, and most other authorities, wrongly treats as marking a sharply defined chronological horizon. Still more unfortunately he accepts the dogma, ' unanimously admitted by British archaeologists ', that the beginnings of a metal industry in the British Isles coincides with the Beaker-folk's advent—a dogma now abandoned thanks to the researches of Chitty, Fox, Grimes and Mitchell. As a result his conception of British chronology in relation to the Northern is distorted. Had our author considered the (Late Bronze Age) British spear-heads imported into Schleswig-Holstein early in Northern Bronze Age II, he would have recognized that there was some confusion.

On the other hand, the alleged British spear-head he cites from Sporupland in Jutland is really a native dagger like that from Uelsby, Schleswig. Incidentally the footnote to p. 60 dismisses far too cavalierly the observations made by Rosenberg, the most experienced and most successful excavator in the North, on the position of the Beaker sherds in the Kirke Helsinge tomb.

In discussing absolute chronology Forssander pours well-deserved scorn on those who claim the East Alpine Copper Age culture as Northern because it comprises types (polygonal battle-axes and flint sickles) which recur in the North, respectively in the Dolmen and the Stone Cist periods. But he assigns to the Copper Age Hungarian axes which, for all their composition, cannot be older than Aunjetitz. And the evidences for synchronisms—similarities between the *Fussschale* of Bodrogkeresztur and Troy I, or between the profile of the Hajdu Samsón swordblade and the Shaft Grave halberd—are not of a kind to yield reliable results. Finally 74 out of 102 figures want scales. Still the book is indispensable for any archaeological library. V. G. CHILDE.

ZUR ÄLTEREN NORDISCHEN BRONZEZEIT (Veröffentlichungen der schleswig-holsteinischen Universitätsgesellschaft, Reihe II, 3). *By* KARL KERSTEN. *Neumünster*; *Karl Wachholtz Verlag*. *pp.* 176 *and* 61 *plates*. 18 *RM*.

Kersten's monograph forms a supplement to Forssander's and is equally indispensable. It is concerned exclusively with the first three periods of the Northern Bronze Age, while in the Swedish work the emphasis is on 'end of the Stone Age'. But here the method is very different. Kersten gives a minute but compressed typological analysis of the bronze weapons and ornaments, starting from the rich but little-known grave-groups in the Kiel Museum but comprehending also the principal collections in Denmark and southern Sweden. But, apart from a good account of the graves in which the bronzes have been found, he avoids as far as possible digressions into other aspects of Northern culture and comparisons with other provinces.

He here publishes for the first time the proof that the copper flat-axes were brought by coastal trade and used by the Megalithic people, though the map illustrating it is far less clear than that given by Forssander. But he abstains from the finer subdivisions of the first native Bronze Age, attempted by the latter. For Kersten, Period IA in the North is represented by early imports—the axes, predominantly British—associated as at Tinsdal with flint daggers distinctive of the early Stone Cist period of Denmark and Sweden. The 'first period of independent bronze industry in the North' is phase IB. But he has already to distinguish three zones in the Northern province which preserve their identity in later periods. Zone I comprises northern Jutland, the Danish

islands and Sweden ; zone II practically coincides with Schleswig-Holstein ; while zone III lies further south. In zone II period I B is represented by a number of grave-groups, whereas in zone I it coincides with the later Stone Cist phase of the Northern Stone Age. First in period II does the true Bronze Age begin in zone I and first then does a distinctively Northern style emerge and the Northern province of Bronze Age culture assert its individuality over against other regions. But now and in subsequent periods zone I is shown to be the focus of Northern culture ; zone II is already provincial. Only in zone I are Sophus Müller's fine typological divisions practicable ; period II can be subdivided into three phases in zone I as against only two in zone II. ' Sophus Müller's subdivisions are not applicable to the whole of the Cimbrian Peninsula, let alone to all Central Europe to which Kossinna had tried to apply them '. Kersten further remarks that in many barrows of zone I stone cists occur in contrast to oak coffins or mere ' Steinpackungen ' and suggest a persistence of the old megalithic tradition. He concludes that in Denmark and Sweden the megalith-builders had preserved some measure of cultural independence, whereas they had been totally absorbed by the Separate Grave (or Battle-axe) folk in southern Jutland and Schleswig-Holstein. It would be their traditions which gave its peculiar brilliance to the Bronze Age of zone I. And it is this happily blended culture that should be regarded as distinctively Germanic.

Kersten's book is as essential for a correct appreciation of the chronology of the first half of the Northern Bronze Age as is Broholm's well-known 'Study' for the second. The good illustration of the Liesbüttel group links up this Northern chronology with the British. And the method adopted for presenting the frequencies with which the several ' Leitfossilen ' are associated is novel and instructive.

V. G. CHILDE.

CORPUS DU FOLKLORE PREHISTORIQUE EN FRANCE ET DANS LES COLONIES FRANCAISES. *Edited by* P. SAINTYVES. Volumes I–III (vol. I *out of print*). *Paris : Librairie E. Nourry, 62 Rue des Ecoles,* 1934–6. 220 *francs.*

The study of the folk-lore of megaliths and other prehistoric remains has always received more attention in France than in this country, partly because of the greater quantity of material, especially in Normandy and Brittany. Some fine work was done in this field between 1890 and 1910 by Salomon Reinach (*Cultes, Mythes et Religions*, tome 3) and P. Y. Sébillot (*Folklore de France*, tome 4).

In 1930 an appeal was issued by Monsieur E. Nourry (under his pseudonym P. Saintyves) for information on the folk-lore of prehistoric monuments and

implements. This appeal contained a bibliography and questionnaire for collectors of original material, and was circulated to members of the Société du Folklore Français and the Société Préhistorique Française, and anyone else interested. The result is the three volumes before us, which are the work of M. and Mme. Saintyves and a number of other members of the societies in question.

Volume I contains about 80 papers on different aspects of the prehistoric folk-lore of France and the French colonies, by a large number of contributors. Among the most interesting of these papers are :—(1) that by G. Guenin on the stone-cult in Gaul, compiled from records between the 5th and 10th centuries A.D., which gives a mass of information relating to the various edicts forbidding stone-worship ; (2) that by A. Lambert and P. Saintyves on prehistoric folk-lore in the Old Testament, which may be compared with the relevant parts of vol. II of Frazer's *Folklore in the Old Testament* ; (3) that by P. Saintyves on the theme of megaliths which go to drink or bathe.

Nearly all the remaining papers in this volume are regional studies.

Volume II opens with a masterly paper, 294 pages long, by P. Saintyves on ' Folklore des Outils Préhistoriques et des Pierres de Foudre '. Although he has focused his attention on France and the French Colonies he has drawn upon almost the whole world for parallels in his exposition of the lore of arrowheads, celts, holed stones and other articles. He has consulted several English works, but appears to have missed Henry Balfour's papers on ' Thunderbolts ' (*Folk-lore*, vol. 40). Among other contributions to this volume is a long paper by Arnold van Gennep on prehistoric folk-lore in Savoy (pp. 295–386).

Volume III is concerned entirely with the north and northwest coasts of France, especially Brittany, Normandy and the Channel Islands. The section on the Channel Islands is by P. Saintyves, who has drawn freely on MacCulloch's *Guernsey Folklore*, but does not appear to have consulted J. H. L'Amy's *Jersey Folklore*. Saintyves' bibliographies of the French material are however very exhaustive. Each item throughout the whole work is numbered, thus greatly facilitating reference, and this reference is made easier still by the provision of very full indexes at the end of volumes II and III. These indexes are the work of Mme. Saintyves, whose arduous task has been extremely well done.

It remains to touch upon some of the subjects referred to.

The petrifaction motive is illustrated by the well-known story of St. Cornély transforming his pursuers into stones and thus forming the Carnac avenues. There are at least three petrified wedding festivities (588, 1862 and 1943) similar to that of Stanton Drew, but there seems to be no really close parallel to the Rollright tradition.

Fairy lore is very common, and relates not only to fairies dwelling in the

mounds and megaliths, but also to the megaliths having been constructed by fairies who carry the stones on their heads and under their arms while continuing to spin, or else carry them in their apron (a common legend with megaliths and cairns in Wales and Ireland). I have failed to discover any parallels to the Berkshire Wayland Smith legend, which seems to have originated in Scandinavia or north Germany.

The movements of megaliths—turning round, dancing, or going to drink or bathe when the clock strikes twelve or when the cock crows—are extremely common. The stone may take a century to complete the turn (113), or turn so quickly that no one can see the movement. It may drink at midday (339) or, more usually, at midnight, and its movements may occur every day or night, or only on Christmas Eve (341) or only once in a century (91). Some of the stones expose vast treasures when they move, but quickly return to their place and crush any would-be pillagers.

We note (1925) a menhir in Finistère supposed to conceal treasure. Someone dug at the base of it for the treasure, but the menhir fell on top of him and crushed him by way of punishment. There is the legend (2261) that one of the stones of the Carnac avenues conceals a treasure, but the hundreds of other stones were placed near it so that it would be impossible to know beneath which stone to dig. The key to the problem is in the Tower of London!

As in Cornwall, the Cotswolds and elsewhere, many of the French megaliths, especially those incorporating holed stones, have the attribute of curing diseases (1353–6) or of promoting fecundity in the newly married (1899, 2001, 2244).

Among the many references to christianized megaliths are (2070) a dolmen with a chapel built round it, and (2492) a menhir formerly surmounted by a cross; this stone was at one time crowned with a garland every spring. Offerings are or have been made at many other megaliths described in these volumes.

Up to the present no illustrations have appeared in this work of megaliths and earthworks with folk-lore attached to them, but perhaps these may be included in another volume which is promised.

In this monumental work M. and Mme. Saintyves and their collaborators are not only publishing an exhaustive survey of the prehistoric folk-lore of their own country, but also setting an example for students in other countries to follow. Is it not time something similar is undertaken in this country ?*

L. V. GRINSELL.

* The time is past; in England we are always too late. Folklore and handicraft began to disappear in England at the enclosures when the traditional life of the peasantry was destroyed by the land-owners. The process was completed when the landless peasants flocked to the industrial centres to sell all that was left to them, their labour. No such violent break occurred in France, where the peasant is still a force to be reasoned with and village life has preserved its traditional form and with it many of the age-old traditions.—EDITOR.

ANNUAL REPORT OF THE BOARD OF REGENTS OF THE SMITHSONIAN INSTITUTION, 1935. *Washington: Smithsonian Institution, pp.* 580. 1 *dollar.*

Readers of ANTIQUITY frequently write and ask the Editor where they can find a good general account of some ancient culture or prehistoric period. Often the answer is—in a back number of ANTIQUITY or in one of the forthcoming numbers. Failing that it is more than likely that it will be found in one of the Smithsonian Reports. It would not be proper for so young a journal as ANTIQUITY to commend the work of a world-famous Institution that will soon be celebrating its centenary. But the fact remains that its Reports are but little known, at any rate outside academic circles, in this country. That is unfortunate for this country; for it indicates a lack of interest in the progress of science. True that British science is well represented in this and previous Reports, which have regularly contained reprints of articles by British scientists (including several articles first published in ANTIQUITY). But it is not likely that one would find a copy of the current Report displayed in a bookseller's shop, even in a University town. Yet the price is about equal to that of this number of ANTIQUITY, and the number of pages is more than four times as great. There are no less than 95 half-tone plates and numerous black and white line-blocks in the text. No better general conspectus of the annual progress of science can be found anywhere, though the Presidential Addresses delivered to the various sections of the British Association, one of which is reprinted here, provide somewhat similar fare.

The Report opens with the reports of the Secretary (Dr C. G. Abbot) and of the Executive Committee, occupying 87 pages. The rest of the volume is devoted to a General Appendix which furnishes 'brief accounts of scientific discovery in particular directions; reports of investigations made by collaborators of the Institution; and memoirs of a general character or on special topics that are of interest or value to the numerous correspondents of the Institution'. The present Report admirably fulfils these objects. This is not the place to review the non-archaeological articles, though they have been read by the reviewer with the greatest interest. They deal with such branches of science as meteorology, astronomy, physics, biology and geology. The last five articles (110 pages altogether) are archaeological, four of them concerned with the archaeology of America and one (by Robert H. Pfeiffer) with 'The Excavations at Nuzi (Kirkuk, Iraq) and their contribution to our knowledge of the history of the Hurrians'.

Dr Hrdlička discusses 'The Coming of Man from Asia in the light of recent discoveries'. The coasts of Alaska and the adjacent islands have yielded no really ancient inhabited sites; none, that is, that can be dated back to the

period of the original Asiatic immigrations into America. For such sites ' have been washed away, or so covered with silts or loess and jungle that to locate the remains is now impossible ' (p. 465). He concludes also ' that not only was no land connection [with Asia] needed for such a passage but that, had the same existed man would not have used it ; he would have followed the much easier route over the water ' (pp. 465, 6). ' As to the Old World ancestry of the American Indian, it is ever more strongly indicated by the accumulating evidence that this connects with the earlier Neolithic man of Asia and through him with the Magdalenian and Aurignacian man of Asia and Europe ' (p. 469). The general position is summarized as follows : ' The main indications are that man came over very gradually and disconnectedly over a long period of time ; that he brought with him differences in type, language, and culture ; that at least some of the culture he carried was already far advanced ; that according to all indications he did not proceed to people America across the mainland, but by skirting the western and southern coasts of Alaska ; and that the Eskimo, the last comer, in his two types is a blood relation of the Indian ' (p. 469).

Mr N. C. Nelson discusses ' The Antiquity of Man in America in the light of Archaeology ', and reaches the conclusion ' that man did not reach the American continent until some time after, but probably incidental to, the general disruption caused by the last ice-retreat, and that he came as the bearer of the partially developed Neolithic culture, somewhere between 5000 and 10,000 years ago ' (p. 506). The Folsom flints (see ANTIQUITY 1936, x, 495) may be a faint far-off echo of the Solutrean flint industry of Europe, but it is ' extremely doubtful ' whether it reached America during the Solutrean period of Western Europe. On the other hand ' the close relation of the Old and New World Neolithic would seem to be attested by the fact that the two cultures had at least 85 objective elements in common (54 being stone implements), besides strong similarities among several other less material traits ' (p. 495).

Mr Frank Roberts contributes a fine ' Survey of South Western (North American) Archaeology '. Here the succession of cultures is based upon stratification, though its value has only been practically realized in quite recent times. Absolute chronology has been obtained by correlating the growth-rings of ancient beams, found in pueblos, with equivalent sections of giant trees whose cutting date was known.* The method has been given the name of Dendrochronology, and promises to do for later periods what the Geochronology of De Geer is doing for the earlier ones. It is interesting to recall that ' when

* See an article by the inventor of the method ; ' Dating Pueblo Bonito and other ruins of the Southwest ', by A. E. Douglass. (Nat. Geogr. Soc., Con. Techn. Papers, Pueblo Bonito Series, no. 1, 1935). We have been trying for a long time to obtain for ANTIQUITY an authoritative account of this new and extremely important technique.

dendrochronological dates became available, it was noted that the conclusions reached previously had been correct, although the estimated time-lapses had been much too great ' (p. 512). The culture of the southwest is divided chronologically into two main groups, that of the Basket Makers (subdivided into three, the first being at present still hypothetical) and of the Pueblos (subdivided into five). The author does not give us absolute equations, but states that the first Pueblo period was ' in full flower in the North [of the southwestern region] by 777 A.D.' (p. 527).

In passing it may be noted that the second Basket Maker period had ' no true pottery but large containers of unfired clay tempered with cedar bast, the chaff of corn tassels, or grass heads '. It was ' molded in baskets or built up without the aid of molds ' (p. 518). Does this represent an independent invention of pottery ? If so it is all the more interesting in that it seems to have occurred in the manner already predicated (without evidence) for the same invention in the Old World. On the other hand Dr Roberts states that ' from the manner in which maize culture and ceramics is gradually developed among [the Basket Makers] and their successors, the Pueblos, it seems probable that the Basket Makers were from the start subject to influences from more advanced cultures in the south ' (p. 493). But was it independently invented there ?

Another interesting side-light is that even among these primitive prehistoric peoples there were collectors of antiquities ! ' Even among the Indians there are and were devotees of the " antique ", and the archaeologist occasionally stumbles upon a choice collection of objects which belonged to such a person ' (p. 520).

O.G.S.C.

LES VICHAPS. *By* N. Y. Marr and J. I. Smirnov. Mémoires de l'Académie de l'Historie de la Culture Matérielle, I. *Leningrad*, 1931. *pp.* 107, 24 *plates*, 11 *text-figures*. 10 *roubles*.*

Vishap in Armenian, *Veshap* in Georgian, means a dragon, a guardian of springs and a ravisher of maidens, but the word and its Turko-Persian equivalent *Azhdaha* is applied to great monolithic sculptures in the highlands of Armenia, which however turn out to be unmistakably fish. They were first discovered in 1909 by our authors, when excavating the Graeco-Roman temple at Garni ; they lie up the Garni river towards lake Sevang on the plateau Gegham (lat. 40° 15′, long. 45° E.). Soon afterwards Smirnov gave a straight-forward account of them and Marr a reasonable one, both reproduced here, to archaeological societies : now Marr publishes photographs and adds a characteristic preface, quite unintelligible.

* See also a short note on the philology of the word *vishap* by E. Benveniste in *Revue des Études Arméniennes* (Geuthner, Paris, 1927) VII, fasc. 1, 7–9.—Editor.

A *Vishap* is a monolith in the form of a fish with eyes, gills and fins indicated, the largest is some 15 feet long. There is no sort of pedestal to hold it horizontal, and it can hardly have been set up vertically; yet a vertical position would suit certain secondary linear carvings, most usually, as it seems, the head and hanging skin of an ox, also pairs of affronted storks. There does not seem to be any real evidence as to their date ; our authors would put them in the first half of the last millennium B.C. Those here published from the Gegham are in four groups of about five each. More recently others have been discovered on Mount Alagöz, 50 miles to the northwest, and on the Toporavank plateau 70 miles further on. Similar stones are reported from the Maikop district north of the Caucasus, and one at Turan in Tannu Tuva (Uryankhai) in northwest Mongolia. They are among the strangest remains of which I have ever read. I should incline to think that they are some sort of water-charm, set up near springs in connexion with sacrifices to River-gods. E. H. MINNS.

EXCAVATIONS AT THERMI IN LESBOS. *By* WINIFRED LAMB. *Cambridge University Press*, 1936. *pp.* 226 *and* 50 *plates.* 52*s* 6*d.*

The people responsible for the well-known black-polished pottery in Western Anatolia formed one settlement at Troy and another at Thermi in Lesbos. Living as a pastoral community they developed slowly and without much vigour but apparently lived in peace in the northeast Aegean. The first settlement at Thermi developed into a second, but the main contact was in both settlements with the Asiatic mainland, as far as present excavations can inform us. Some small contact with the Cyclades is indicated by the importation into the second settlement of Cycladic marble bowls and by the imitation of Cycladic pins. Battle-axes indicated contacts with the north and east and are earlier in Lesbos than in Greece proper. The second settlement evolved normally into a third, but a general decline now sets in though the reasons for it are not known. The fourth settlement is a new start and its later stages prove to be contemporary with Troy II. Lesbos was a minor dependency of the Trojan centre, and shared with it contacts with areas extending along the north Aegean coast. But just as Troy II modelled and remodelled its defences, so Thermi V heralds a large defensive system. At the close of the Early Bronze Age Troy II is utterly destroyed and Thermi V abandoned. Fortunately several recent discoveries have made it possible for the present excavators of Troy to push back the date of the destruction of Troy II to about 2300 B.C. The fifth settlement at Thermi is known to have ended shortly before this catastrophe. The site is thus provided with a fairly solid chronology, and Miss Lamb dates the first Thermi to 3200 B.C.

The abandonment of the site at the close of the Early Bronze Age, due to Asiatic disturbances, was not permanent. It was occupied again after a period

and lasted down to 1200 when, with Troy, it ended in a vast conflagration. Now that we know that Troy VII A is the last Troy and the Troy of the final destruction, we can equate the last Thermi exactly with it.

The interruption between Thermi V and the later settlements does not necessarily presume the arrival of a new race. Miss Lamb concludes that there was not much change in the types of artifacts.

The quality of the pottery of Thermi is not high. It comes at times up to the Trojan standard, but this does not say much. Yortan and Cycladic shapes are common and the Trojan shapes are consistently followed.

The report is lavishly published and is admirably arranged. It will serve as a standard for comparison with other Anatolian sites. Few points call for criticism: one is worth mention; the author accepts Davies' views on the neglect of copper-working in Cyprus in the Bronze Age. It is a view that can no longer be held. Cypriot copper was mined in that period. But both metal and Mycenaean imports are exceedingly rare at Thermi. It was undoubtedly a small provincial settlement, of no importance in the larger world. But as such it is a more useful site to study than the larger and more complicated sites.

STANLEY CASSON.

THE GREAT CHALICE OF ANTIOCH. *By* GUSTAVUS A. EISEN. *New York: Fahim Kouchakji*, 1933. *pp.* 22, *with coloured plate and illustrations.* $1.50.

Grail-hunting is not yet dead. Mr Eisen, having made up his mind that in this piece of metal-work we have the Holy Grail, proceeds, with complete disregard of archaeological method, to prove it. The title of 'chalice' leads us well on the way, and criticism that the decoration cannot be as early as the date required for the Last Supper has persuaded the author to dissociate the interior of the cup from the exterior, despite the fact that most ancient plate is so constructed. The interior plain cup is now the claimant for the high honours in question. Looking for the evidence to prove his hypothesis Mr Eisen with little difficulty finds it. We are told that in A.D. 362 the Antioch 'cathedral treasurer' had hidden the sacred treasures. He died under torture and they were never recovered. The 'reliquary' containing the inner cup is also a term which begs the question. Having entitled the outer decoration thus, the author finds no difficulty in explaining its normal wear and tear, due to handling, as caused by the 'kissing of the relic'. (I have yet to see how kiss-weathering can be proved !) He then notes that pieces have been cut out of the rim as souvenirs of so sacred an object. They are more probably cuttings made by goldsmiths to test the value of the metal. He examines the figures of the apostles and of Christ and sees in them exact portraits, when in fact they are variations of

types. ' Each single figure he says is instinct with life ' and he explains this by telling us that this was due to ' a simple procedure employed by the majority of Greek artists from early archaic times ' by which they always represented their figures ' when the lungs are filled with air '. Seeing that all the figures here are heavily draped it is impossible to see any indication of their deep-breathing—quite apart from the truth of the generalization. All the figures are exactly identified, and for dating the author brings comparison with a Boscoreale cup and with the Naples glass cameo vase. This establishes for him a 1st-century date. But the two representations of Christ (the only certain identification) can be exactly paralleled by the 4th-century seated stone statue of Christ in the Terme museum at Rome (here not noticed) and the vine-scrolls are clearly to be associated with similar scrolls on late Roman and early Byzantine work such as the pillars of Aphrodisias. The Boscoreale comparison will not hold, for the seated Augustus is in a totally different attitude from the seated Christ, whose position foreshadows that of 9th-century Byzantine and Romanesque. The ' chalice ' is all one piece and several centuries later than here stated. The exhibition of this cup at the World's Fair at Chicago and its claim to be the Holy Grail have brought much comfort to the pious. But in fact it is a very fine example of church plate of about A.D. 500, no more. It must, as such, be fitted into its proper place in early Christian art. The ' syndicate of Arabs ' who first found it were not, after all, the modern equivalents of Gawain, Parcival and Galahad.

STANLEY CASSON.

SENNACHERIB'S AQUEDUCT AT JERWAN. *By* THORKILD JACOBSEN *and* SETON LLOYD. *Illinois: University of Chicago Press*, 1935. *pp.* 49, *and* 36 *plates*. 23*s* 6*d*.

This absorbing monograph is a model of its kind. The authors can claim the merit of being the first to discover that the causeway of stone, first noted by Layard, as leading from the city of Nineveh to Bavian in the hills, was in fact part of an immense bridge, more than 300 metres long, the oldest known bridge in existence. Both King and Layard considered these remains to be a roadway, and local inhabitants thought that it was an ancient dam. The authors followed Olmstead's hint in 1908 that it might be a canal of great size. They also found the missing portions of the great inscription which finally prove that we have to do with a colossal aqueduct constructed for the purpose of supplying Nineveh, as part of Sennacherib's grandiose plans for the general embellishment of the city and the irrigation of its lands, and the making of orchards and parks, which he undertook at the beginning of the seventh century B.C.

The fine photographs and plans here published show the details of this causeway-canal, with its bridge and its sculptured stelai at the canal-head. The

publication is completed by a note by Professor Frankfort on the local anthropological types, illustrated with plates which show the persistence of ancient Assyrian, Armenian and Mediterranean types. Attention is also called to the survival among the Yezidis both of knowledge and use of the aqueduct and of ancient rain and fertility rites. The name of Tammuz survives among Yezidis as Melek Tauz, and the red anemone of Adonis is still placed on one shrine in spring.

This is a model publication, comprising much hard travel and laborious research. The full publication of the canal inscriptions and the informative photographs make this a volume which even non-Assyriologists will enjoy.

SHORT HISTORY OF GREECE. *By* DAVID M. ROBINSON, Professor, Johns Hopkins University. *New York : 37 East 36th Street*, 1936. *pp.* IX 227. *Price 3 dollars.*

We are told in an introductory note that this is ' the first book on Greece to be written from the point of view of the history of civilization '. It roams over a wide field, beginning with the early excavations of Ilios and ending with Aristotle's theories of sex-determination. It appears to be based on lectures delivered to a junior University class, to whom it is necessay to explain that a tetradrachm is worth four drachmas ; and this may account for the colloquial style, the anecdotes of Schliemann's domestic troubles, the apocryphal legends of Demosthenes with pebbles in his mouth and Isocrates expiring on receipt of the news of Chaeronea, and various seemingly irrelevant statements.

A young reader will be amused by the playful remarks that Olympias was a bit wild and kept snakes in her bed ; that Philip was ' rather given to drinking ' and ' flirted with a Thessalian girl ' ; they may even be impressed by the not very original statement that ' Homer was the Bible of the Greeks ' ; but they may well be puzzled by such words as *rhyton*, *thalassocratic* and *philocalic*. To maturer Hellenists it will be a shock to find that *Seisachtheia* means an earthquake, *mēros* a side, and *kyrbeis* laws.

On the historical side the work is radically unsound ; thus, it seems to be implied (p. 51) that the small population of Attica in the 6th century was due to the scarcity of money ; and the statement that Pisistratus, after his second exile, ' became once more a constitutional ruler ' (p. 53) requires a good deal of salt. Recent historians, again, do not find it ' a strange coincidence ' that Gelon, when he might have helped the Greeks against the Persians, was himself hampered by a Carthaginian war (p. 90). Perhaps ' coincidence ' is ' wrote sarcastic ', but the statement that ' the old democracy of Solon and Dracon was restored with unlimited franchise ' (p. 129) cannot be excused even as a ' goak '.

On the scientific side it is rash to imply that Empedocles had any notion of

the circulation of the blood ; and it is unbelievable that archaeologists discovered in the Ceramicus thirteen skeletons of Spartans with arrows still piercing their hearts (p. 128) ; this is, presumably, a rhetorical way of saying that human bones and arrow-heads were found in the same grave. I have not been able to find in the *de Anima* any suggestion that Aristotle attributed sex to plants.

I have not checked the archaeological sections, for here Dr Robinson, who has himself superintended excavations at Olynthus, is presumably on safer ground; but considering the book as a whole I should hesitate to put it into the hands of students whose critical faculty was not well developed. J. F. Dobson.

A HISTORY OF THE GREEK WORLD FROM 479 TO 323 B.C. *By* M. L. W. Laistner, Professor of Ancient History, Cornell University. (Vol. 5 of Methuen's History of the Greek and Roman World). *Methuen*, 1936. *pp.* xv, 492, *with four maps.* 15*s.*

Mr Laistner is thoroughly familiar with his authorities, both ancient and modern, and shows a critical instinct and sound judgment in striking a balance between divergent views. If he dissents from a generally accepted opinion he states his reasons dispassionately. This is noticeable in his treatment of the difficult period of the *Pentekontaetia*, with which his book begins. The Peloponnesian war is described with as much detail as space allows. The petty wars and jealousies of the rival states in the fourth century have always been a weariness both to the teacher and the student, and if Mr Laistner has failed to make this period interesting, he has failed in good company,

When we come to the Macedonian period we can see our way more clearly, owing to the unity of purpose in the two great characters who dominate the stage. The author does full justice to the genius of Philip as a diplomatist and an organizer, and to Alexander's skill as a general. He regrets that ancient authorities treated this side of Alexander's character almost exclusively, to the neglect of his constructive policy, and he endeavours, as far as the paucity of material allows, to rectify this omission.

Taking a general view of the book, we feel that it might have been made more interesting if the writer were rather less impartial and dispassionate—a quality which is justly claimed for him on the wrapper. He displays no prejudices or enthusiasms. We may suspect that Alcibiades is something of a hero to him, but he is careful not to say so. We do not get a clear enough picture of the personality of Pericles to understand the extraordinary hold which he had over the Athenians ; nor again is the strength of the opposition to him sufficiently explained. Even the treatment of Alexander is somewhat mechanical.

As a supplement to the history proper, Mr Laistner gives us valuable chapters on special subjects, such as Warfare, Government, Economic conditions,

Art and Literature. In the first he dwells on the revolution wrought by Philip and Alexander in methods of warfare. He might, when praising the Macedonian siege-machinery, have emphasized more strongly the importance of its mobility, which enabled catapults not only to be transported from place to place, but even, on occasion, to be used as field artillery in a general engagement. It is rash to say, without explanation, that a trireme was propelled by a single bank of oars arranged in threes—this is to identify the Athenian warship with the Venetian galley of the Middle Ages, and other views are still current. The remaining chapters show the same qualities of care and precision which characterize the narrative ; and, though neither part would be complete without the other, we consider the latter to be the more successful, and therefore the more important part of the book. J. F. DOBSON.

L'ALSACE ROMAINE. *By* ROBERT FORRER. *Paris : Librairie Ernest Leroux. 25 francs.*

Starting from Julius Caesar's intervention in 58 B.C. against Ariovistus at the invitation of the Sequani, M. Forrer gives an admirable and scholarly account of the whole Roman occupation of Alsace, based on the numerous archaeological finds and inscriptions.

The population was effectively Romanized at an early stage, and it is interesting to see how designs and ideas become altered in the process, and take on a new virility through their contact with barbarism. Notably, the Mithraic god Eon assumes a most un-Roman moustache, while Apollo lives again as ' Le dieu Abolo '.

Many aspects of civil life are dealt with, and there are chapters on the different types of castellum, pottery, armour, and sculpture. Some of the latter reach a very high standard, particularly the beautiful relief of Mithra killing a bull, discovered in fragments at Königshofen.

In spite of the destruction of their temporal power by the Germanic invasions, M. Forrer traces a continuity of certain aspects of Roman civilization lasting down to the present day, manifested, for instance, by numerous place-names, such as Saverne, which is derived from Tres Tabernae ; while the main plan of Strasbourg (Argentoratum) is essentially the same today as it was then. The epitaph of a Roman sausage-seller ' Hominis probissimi negotiatoris artis macellariae ' also perhaps indicates that national habits have altered little.

The book is illustrated by 41 excellent plates and numerous diagrams and illustrations ; the only criticism against it is that there is no adequate map, which makes the chapter on forts and routes hard to follow. ELEANOR DOBSON.